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PENMANSHIP BY PRINCIPLE

PUBLISHED BY

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PENMANSHIP INSTRUCTOR

WESTERN STATE NORMAL SCHOOL

KALAMAZOO, MICH.

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FOREWORD

The purpose of this little book is to provide both teacher and pupil with something definite to do, give them a chance to think before doing it and to supply them with a definite means of criticizing their results.

A very large number of teachers have no special training in penmanship and consequently do not know the essentials of writing and do not understand the material presented in the writing system they are supposed to teach. Because of this, the material seems to them very indefinite. To them there seems no definite daily goal or task. The goal and the task, to be sure, are there but so far away that the lesson for the day is without interest and motivation.

Penmanship has been treated by many as purely manual art, and consequently a very little amount of the child's mentality has been called into action in the penmanship lesson. For this reason the proper kind of interest has not been awaked, the most vital kind of teaching has not been done, and the most lasting results have not been secured.

The possibility of being able to judge and criticize a result intelligently and properly not only tends to bring about better work but to create interest in the same.

Because of the above reasons the author thinks that this little book has the right of existence.

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PART THREE

PLATES

PART ONE

HISTORY OF WRITING

Writing, or the art of expressing thought by means of graphic symbols, is the greatest triumph in the development of the human race. It is also at one and the same time the instrument and the recorder of its progress. Without writing, history, science, religion and many other great and important factors that have been instrumental in bringing about our civilization would have been very rudimentary. In fact they would not have developed beyond legend, tradition, and superstition. Its acquisition caused a new day to dawn for the human race, and its day of usefulness is not yet passed. Although ancient, it is by no means an antiquated art. It still functions although it has assumed many different forms.

The symbols employed by many of the nations in our day, although springing from the same roots or at least from the same basic ideas, are many and varied. The material used to express them also shows a great many variations peculiar to the surroundings and the development of the people engaged in writing.

In the beginning, the hand was the servant of the mind aided only by a few crude instruments. As civilization progressed the hand and the crude instruments were supplanted by other more rapid and ingenious devices. Even other characters were devised at times in order to take care of the needs of the times and the affairs of certain forms of human enterprise. If sentiment were not as strong as it is, it would be possible to create an alphabet more easily and rapidly written and just as easily read as the one we now have. However, in spite of many changes, writing is still built on the foundations laid down by our ancestors, and many of the ancient letter forms are still very apparent in our modern script.

During the centuries, religion, politics, migration, and language have all come in contact with the alphabet and have been served by it. Because of these contacts they have all had their influence on the written symbols, changing them as the needs demanded.

Among different peoples in different ages the ability to write has been the sign of power, of ability to divine, of intelligence and of gentility, and has always given prestige and demanded recognition. Poor writing has always demanded an apology. Progress has always rested upon the knowledge of letters and most likely will do so for some time to come. Because of the fact that mechanical devices have taken over a great deal of the work formerly done by hand in order to secure the speed that the age and conditions have demanded, we at present time think only of the work and style of letters executed with pen and pencil when writing is mentioned. This is a very narrow application but it is, however, the phase with which we are greatly concerned in education, in business, and in social life today.

To-day we have the letters which we call the alphabet. They have been shaped and formed in the centuries past. Many nations have given their best talents to develop them in order that their nations might prosper. Priests, kings, and statesmen have all given their time and effort to master and to better them and to hand them on to the common people that they too, might become enlightened. We, the common people of to-day, have inherited them. Both for sentimental and practical reasons we have not the right to abuse and misuse them as we do. On the other hand, it is not only our duty to teach them but to teach them in the most effective manner. To be able to teach the youth to make the letter is not enough, but it should be our aim to make them in the quickest and easiest manner with as little waste of time and energy as possible. This is the aim of every educator who is honestly interested educational manner that which has been so carefully guarded in the past and upon which our progress is founded. It is possible to write without being taught, but the result will be much better if teaching is done. The essentials of writing have been classified, and logical teaching is therefore possible.

ESSENTIALS IN WRITING

As writing developed, certain essentials showed themselves in order of their importance. This order, however, has changed somewhat in modern penmanship. The first essential and the real cause for writing was and is letter form. The original pictographs were decidedly different in form and although to us they seem in many cases to be very much alike to the primitive man there was a distinction because he knew the conditions of his times. As the pictures became simpler in structure and were made to submit to a uniform type structure there was at times a tendency toward similarity in form. When this occurred steps were taken to eliminate the sameness. From the same form many different letters somewhat similar in structure, but differing only in some distinguishing mark or point derived from time to time in order to take care of related sounds that developed in the languages.

As man's associations increased and his activities multiplied speed became essential. To secure this speed the materials that were used had to be changed and the structure of the letters had to be modified still more. At a later period in order to provide for this increase in speed there was a linking together of the letters with a connective stroke and thus cursive writing which allowed an unbroken stroke or movement came into use. The general forms of the letters were not changed much but angles and turns were more pronounced perhaps, and loops were introduced to some extent.

Speed is consequently the cause of movement, but movement is the method employed in getting it. Speed is the result, movement is the method by which it is obtained.

Spacing and arrangement were at first not considered very essential, and up to the time of cursive writing even words and sentences were not spaced. Capitals also were not used. In early writing, the story was scattered apparently all over the material upon which it was written.

Slant and quality of line were evolved as outgrowths, it seems, of speed. Certain characteristic strokes are peculiar to different types of writing, and

such strokes have been developed and perfected according to the various needs. These strokes depend largely on the material used.

Position is also the outgrowth of speed, because to procure ease and speed in execution, the proper muscular adjustments must be secured, and thus a position that will make these adjustments is necessary. This means position of material as well as of body.

The essentials will be discussed in order of their importance in modern writing.

LETTER FORM

Writing is simply a method of conveying thought by means of symbols. However, these symbols must be understood by others than the writers. The larger the group that understands the system of symbols the larger the number that can be served by the same. The value of writing depends upon the service it renders. Thus it is clear that writing must first of all be legible. The characters or letters used must be formed well; that is, well enough to carry the desired message without causing erroneous interpretations.

POSITION

As stated, position is one of the essentials that must be taken into consideration in judging the quality of penmanship. Due to the various conditions under which writing must be done the positions assumed are just as varied. Some are good and some are bad, but as a rule we must take into consideration things as they exist and the quality of the work must be judged accordingly. It would be unnecessary, useless and indeed impossible to describe the many positions that might be assumed and the quality of work that might be expected in each case. However, it will be necessary to describe the position that ought to be assumed under ideal conditions.

Head. The head should not be allowed to drop to one side.

Eyes. The eyes should be from twelve to fifteen inches away from the paper.

Arms. The arms should rest on the large cushioned muscles just in front of the elbows.

Elbows. Both elbows should rest on the edge of the desk or just off the edge.

Wrist. The wrist should be held rather flat and high but not so high as to create fatigue.

Hands. The writing hand should rest on the last two fingers, either on the knuckles or on the nails. The first finger should be on top of the pen, the second finger at the right side and the thumb on the opposite side of the pen. The four fingers should be together and the last three curved underneath but they should not be gripped. The hand should be half open.

The left hand should take care of the paper when shifting is necessary. When writing at the top of the paper the left hand should be at the bottom of the paper and when writing at the bottom the reverse should take place. With left-handed people directions for the right and left hands should be reversed.

Pen. The point of the pen or pencil should be from an inch to an inch and a half from the tip of the first finger. The nibs should touch the paper at an angle of about forty-five degrees.

Penholder. The penholder should point over the shoulder of the writing arm or at least along the forearm of the writing arm. It should cross very near the knuckle nearest the palm of the hand. This, of course, depends upon the anatomy of the person writing and will adjust itself if the pen touches the paper at the right angle.

Paper. The paper should be placed in front of the person. The lower edge of the paper should form an angle of about thirty degrees with the lower edge of the desk.

Feet. The feet should be flat on the floor just a trifle apart. They should by no means be allowed to dangle. The left foot may be a little in advance of the right.

The biggest essential to be considered at all times in securing the position is health. Nerves, muscles, and blood vessels should be relaxed and free.

MOVEMENT

Movement in writing should be the result of the endeavor to carry out a mental image. It is the physical expression of a mental concept. Movement does not mean speed; it is, however, the base upon which speed is built. The mark or marks produced on paper ought to be the picture of the motion set into action by the mental image modified by the hampering tendencies of physical conditions. Right here is the difficult place of bridging from the mental to the physical. In order to secure the physical requisites of movement the position as described under the paragraph entitled "Position" is necessary. To some extent movement is also dependent upon speed in that a certain momentum must exist.

Arm movement means that the larger share of the work is done by the larger muscles of the shoulder and upper arm. The fingers hold the pen but they do not propel it. It is often the case that the fingers are not moved but in order to refrain from being moved are gripped excessively. This is entirely wrong. Finger movement is far better than such a position. The bad feature about finger movement and the one that makes it tiresome and undesirable is that the fingers must adjust themselves every two or three letters. When any speed whatever is desired letter forms, slant, spacing, and quality of line all deteriorate if finger movement is used to excess.

SPEED

As writing grew up when the world was not rushing at the breakneck speed in which we now find ourselves, it was necessary to emphasize the one essential only, namely legibility. Now, however, it has been forced to take or not only speed but a great deal of speed in order to keep up with the apparent pace of the world. In the fulfilment of time the printing press, shorthand, and the typewriter have each stepped in to take care of the required speed and have not only satisfied the speed demands but have narrowed down decidedly the realm of writing in general. To some people this constant

narrowing down seems to be a prophetic indication of the final abolition of writing as a general means of graphic expression. This, however, is a hasty conclusion, but the real conclusion that may be drawn is that in each event writing has been given a new chance to really emphasize its real mission, legibility.

Although this world is a busy place and speed is required, there is no reason to believe that everybody is actually busy. Business may be busy but business has its business appliances in most cases and the actual writing done by the ordinary man need not be done at a breakneck speed. After all is said and done the impartial person comes to the conclusion that writing is for the sake of legibility first of all, and that the demands for speed can be taken care of by means that are already at hand. The ordinary man needs speed in writing to the same extent that he possesses speed in his spoken language. Where the pen can not follow why develop speed? To say that speed is not needed is absurd, but to develop it from the very start as the only essential is equally absurd. Rather than develop speed the writer's muscular relations ought to be established and emphasized. Speed is the outgrowth of the proper muscular relations. Movement and speed must not be confused. Before speed can be developed, movement must be developed, and movement depends upon letter form and position. It is quite essential that the direction must be established before the vehicle is set in motion. A great deal cannot be gained by simply setting the instrument into action as action in itself is not productive of beneficial results. It is contrary to the laws of nature and of mind to simply set matter in motion. A sense of direction, perhaps not perfect at first, but as perfect as the mentality of the person allows linked up with the proper muscular adjustment ought to be the only fundamental dwelt upon in learning to write.

We should teach for the purpose of preparing the child to meet the demands of life later on. The first grader and even the sixth grader are not asked ordinarily to carry on the business of the world, why then should we be preparing him in those grades to meet such demands? We are not all preparing for the same work in life and the writing that we need is writing that will meet the demands of the particular circumstances and sphere of life in which we find ourselves.

SLANT

Slant in writing is not an absolute essential. It may be the expression of the personal character and inclination of the individual, but it is not a characteristic that penmanship must possess in order to be legible or well done. The quality of writing cannot be established by its slant because of the fact that as individuals differ, slant differs also. It is difficult to require one slant from all, as the personality of the writer enters in here very strongly. It is not even to be expected that slant writing is the best writing for every individual. It seems, however, that the forward slant is better than the vertical and backhand for the majority of people and for this reason ought to be required in the model hand. Although the amount of slant cannot be definitely stated, if it is too great it ought to be discouraged. The ideal slant ought to be about from twenty-two

to thirty degrees from the vertical. This is the prevalent slant in model writing for copying purposes but the individual ought to be allowed self expression in this phase of the art. That nerves and physical make-up and temperament play a great part in writing must not be ignored and they find expression to some extent in the individual slant.

The down stroke is always straight in writing and always determines the slant. Up strokes or connective strokes, as a rule, have twice as much slant as the down strokes. A good rule to follow is to suggest that the down stroke be drawn toward the middle of the body when the position is right. Excessive slant or lack of slant may be remedied by shifting the position of the paper. The smaller the angle that the lower edge of the paper forms with the lower edge of the desk the less slant there will be in the writing.

ALIGNMENT

Alignment deals with the height of letters. There are several levels both above and below the line. The unit of measure in letter height is the minimum group or group A.

Group A consists of small letters, i, u, w, e, n, m, a, o, and c. In adult writing this group is one third of a space high.

Group B consists of r and s which are just a trifle taller than those of the minimum group.

Group C consists of small letters t and p, which are two thirds of a space tall. The letter p forms a subdivision of this group in that it extends one third of a space below the line and yet is not a loop letter.

Group D consists of small letters l, b, h, and k which are a full space above the line.

Group E consists of loop letters below the line; j, y, g, q, and z. These letters are one third of a space above the line and two thirds of a space below.

Group F consists only of letter f. This letter extends one space above the line and two thirds below.

Group G consists of all capitals. Capitals are one space above the line. This group also has a subdivision to which belong all the letters that extend below the line. Such letters extend two thirds of a space below.

It must be understood that in actual work the alignment may vary considerably. The different groups may vary, that is, the capitals may be taller than the loop letters. The loop letters may be no taller than t and d and the loop letters below the line may be either shortened or lengthened. Within a group, however, there should be no variations.

SPACING

Spacing also is an essential which may show the individual expression. It compares very well with the stride in a person's walk. In formal writing as in military drill the stride may be unified but in actual writing this is not to be expected. The amount of space allotted to the writing to be done in most case determines the amount of spacing that should occur in the writing especially if the amount of space is small. Writing that is too compact or too extended is undesirable. The compact style oftens causes confusion and eye strain while the extended style cannot be grasped by the eye at one single

glance. Between these extremes there are many degrees of spacing from which to choose. At all times spacing ought to be uniform. There are in every written page four kinds of spacing that ought to be taken into consideration, and each successive one is a trifle wider than the one mentioned before it. They are as follows: spacing in letters, that is, between the different component principles, spacing between letters, spacing between words, and spacing between sentences.

Component principles of letters should always be joined with angles, that is, the parts should form a point where they join. Very little retracing is done. The rounding parts of n and m and the like are individual principles or may be considered as such and are not principals three and one joined. Letters should always be joined with turns or rounded joinings. The final up stroke of a word is always joined with a turn.

QUALITY OF LINE

Early in the development of the alphabet there was an attempt to systematize the kind and quality of the stroke used. Every style of writing in use by different nations has its own particular quality and kind of stroke which in many cases is due to the material used. In our modern style of penmanship a definite uniform quality of line has been evolved and is very essential for two reasons. First it is easier to read when the quality is regular and secondly it is more easily written as there is no difference in pressure. The line should be free and flowing and without kinks. To secure this a good movement must be mastered. Letters that are drawn will not produce the right quality, and excessive finger movement also will not produce it.

NEATNESS

Concerning neatness it suffices to say that neatness is almost next to perfection. Well formed letters poorly arranged and on an untidy paper are insufficient and undesirable. The composite mass as well as the individual letter must also present a clean and orderly appearance.

SOME REASONS WHY WE HAVE POOR WRITING AND HOW TO REMEDY THE CONDITION

The reasons we have poor writing are too numerous to mention. There are, however, a few that are so very apparent that any person at all interested in penmanship will be able to enumerate them at a moments notice. They are as follows:

Failure on the part of the teachers to appreciate the value of good writing and to point out its importance to the pupils. This condition exists more often with the teacher who has specialized in some particular subject, perhaps penmanship is not the only subject ingored by such a teacher. The attitude assumed by many teachers by no means encourages penmanship. On the other hand, their attitude and the style of writing they have and use, create in the pupil the feeling that he can get along without penmanship. The pupil notices that other people have made a success of life, or at least what he calls a success, without being able to write well and why shouldn't he?

Failure to give any training whatever to the child during the habit forming period of his life. In later years when writing is really needed there is no structure upon which to build and the writing that the person does possess goes from poor to worse.

Failure to systematize the work in penmanship in the school system so that when the pupil arrives at the end of the seventh or eighth grade he will have a fair style of penmanship instead of a style that is a composite of many. Quite often fads and commercial interests are the cause for changes in the school system irrespective of the effect on the child. In many cases the change from one system to another has been affected too late in the child's development and the style that he possesses, although perhaps not the best is broken up in the seventh or eighth grade and the pupil is left no style whatever.

We have now come to the point it seems where there is very little difference in the style of letters taught as has been the case in the past. The main difference is in the method used to get the best work from the child. There are, however, some differences as to what essentials are the proper ones to emphasize.

Very little poor writing is due to inability on the part of the student to learn to write, or to the fact that his writing has been ruined after having finished school. If writing has fallen below standard but was properly taught in the first place it should quickly come back when conditions are good and favorable for good writing.

In order to have good writing the first essential is that a definite program be laid down for the child to follow from grade to grade in harmony with his growth and development. The second requisite is that the attitude of those dealing with the guidance of the youth be favorable toward penmanship. This is not to be a superficial but an actual interest in penmanship and the welfare of the child in this line of endeavor.

The third requisite is the ability on the part of the teachers to write well. If the teacher cannot write well it is his duty to know the real essentials of writing so that he can demand the right kind of penmanship in written work. It is, however, very essential that the teacher write well because the work the pupils see will have a greater influence than all the teaching and preaching the teacher can do.

There is no need of making a greater ado about penmanship than about any other common branch. Give it its proper attention and enough has been done. With the proper kind of text, teachers, and enthusiasm on the part of the teachers and superintendent any superintendent should be able to handle the penmanship situation just as well as he handles the situation in reading, spelling, arithmetic, and geography without the aid of some outside help.

Penmanship should be placed on an educational basis and not on a commercial one. By all means, however, it should not be untaught. The typewriter has not as yet supplanted the hand, the pen and the pencil. Even if the day will come when such will be the case, there still will be the need of signature writing, and experts say it is harder to forge a well written signature than it is a poorly written one.

THE OBJECT OF SYSTEMATIC TRAINING IN WRITING IN THE GRADES

The purpose then of systematic training in writing in the grades as mentioned previously is to prepare the child in a manner in accordance with the laws of growth and development to write a free, easy, legible, and stabilized hand at the end of the seventh or eighth grade. To aim to secure this perfected style before this time and to equip the child with a handwriting that will fit into the demands of adult business work is not wise. We do not aim to do this in other branches nor are we willing to place our stamp of completion on any product produced below the seventh or eighth grades. Why then should we do so in writing? Why should we try to force adult standards upon the pupil when such a procedure is contrary to laws of growth even though the child appears able to do what is required? Why try to commercialize writing to that extent? The writing in the grades should be systematized so that the development from year to year is gradual and built on physiological and psychological basis and conditions. Even within a grade there are five years of growth prevalent and this too should be considered when demands are made. There are matters more vital to child life than penmanship. The demands that the child may make of the teacher and of the work at large for the sake of his own development are greater by far than the demands that the teacher and the world may put on him in the lower grades, especially when it comes to penmanship. The demands that the child makes must come first and foremost. The work he does in the lower grades should only be stepping stones for the future and not completion itself.

By presenting the subject in an orderly fashion the waste of time both on the part of the teacher and the pupil will be minimized. Nothing will have to be unlearned from year to year. No pet notions will then be taught and there will be a constant development during the time that the child is in the grades. During this period he is in the habit forming age, and naturally any subject that is to be used as a means of expression in later years should be treated in a systematic and logical manner in the formative period.

WRITING A GROWTH

Writing should, by all means, be treated as a growth that develops with the child from year to year. It has and is the constant exhort of our educators to outline the work in other branches to fit the various grades, and the same care ought to be taken in penmanship. It is well to know both the child and the subject in preparing a course in penmanship. To be skillful in penmanship is not enough. Most of the good penmen have developed their good penmanship in after years and in doing so have spent much time and effort. They done it in a mature way and they have thought the same methods would apply in the case of the child, and without much insight into the child's possibilities have prepared the course for the child from their own standpoint. They have also set their own standards as the ultimate standards for the child.

Another big difficulty in teaching writing is that the person who understands the child has not done enough to solve the problem of school penmanship. These two extremes ought to meet in order to outline the work for the

school rooms so that the growth and development would be given due consideration. A program outlined in such a way would make the proper demands in each grade and also give definite methods and instructions how to teach the work according to the child's development.

In graduating the following essentials should be considered:

- Size of work.
- Quality of work.
- Amount of detail.
- Quality of line.
- Movement and speed.
- Materials used.
- Length and time of period.

SIZE OF WRITING

The size of the paper, the purpose for which the writing is intended, and the amount of writing to be done are the factors that will determine the size of the writing. In the school room the age of the pupil is also a very important factor to be considered. With many persons it does not matter how generous the supply of space is they will still write small and again others will write large even though the space is very inadequate. Both styles may be good and legible. Extremes, of course, are not desired and in teaching should not be used nor encouraged. Uniformity should be sought in order to avoid extremes and to facilitate the teaching of the subject. When writing on ruled paper is begun it is necessary to use only either $\frac{1}{4}$ or $\frac{3}{8}$ inch ruled paper. This size will be large enough for the lower grades and small enough for the upper grades. The paper best suited for the lessons to follow ought to be from seven to eight inches wide. It will be more convenient to use the same kind of paper throughout the grades.

The $\frac{1}{4}$ and $\frac{3}{8}$ inch spaces will be used as the standard units of measure. If necessary the term unit will be used to designate 1-3 of a space.

The writing used in the school grades may be divided into four groups or divisions according to grades or groups of grades. There is, of course, no set period when the actual change takes place in a pupils informal writing but in the formal writing lesson this may be done. Of course, the child will be expected to follow up this instruction in his informal writing as soon as possible and to the extent that his individuality will allow. It will in fact be understood that people will always use different sizes in spite of their instruction.

Group (1.) consists of the first grade (if writing is taught there,) the second grade and the early part of the third grade where the transition to group (2.) should be made.

Group (2.) consists of the third and fourth grades and perhaps the fifth. The transition to group (3) should be begun in the latter part of the fourth grade or in the early part of the fifth grade.

Group (3.) consists of grade sixth and up.

Group (4.) consists of the upper grades especially where a more individual size may be chosen. Here the size may be smaller and the size mentioned under alignment need not be followed strictly.

The alignment of the different letters according to these four groups will be as follows:

Group (1)

The letters in group A. under alignment will be one space tall.

Those in group B. will be just a trifle taller than those in group A.

Those in group C. will be two spaces tall except "p" which is one space below the line also.

Group D. will be two spaces tall.

Group E. will be one space above and one space below.

Group F. will be two spaces above and one space below.

Group G. or the capitals will be two spaces above the line. The loop letters that extend below are one space below the line.

Group (2.)

Group A becomes one half a space tall.

Group B. Becomes just a trifle taller than one half a space.

Group D. becomes one space above.

Group E. becomes one space above and from one-half to two-thirds of a space below.

Group F. becomes one space above and one-half to two-thirds of a space below.

Group G. becomes one space above and the loop letters extend from one-half to two-thirds of a space below.

Group (3.)

Group A. is one-third of a space above the line.

Group B. is just a trifle taller than one-third of a space.

Group C. is two-thirds of a space above the line and the letter "p" is one-third of a space below.

Group D. is one space.

Group E. is one-third of a space above and two-thirds of a space below.

Group F. is one space above and two-thirds of a space below.

Group G. is one space above and two-thirds of a space below.

Group (4.)

All the letters are reduced in size but the proportions of group (3) are kept. The minimum letters become about one-fourth of a space.

MATERIALS USED IN THE GRADES.

Schoolroom material is by all means not always the best nor the kind best suited for the intended purpose. It is impossible to secure it many times. Books on theory may advocate certain materials and hold up the ideal. This is the proper thing for them to do; but the ordinary school room equipment does not have it, and the teacher must do the best he can to get results that are in accord. Therefore the best advice to a teacher is to know what he ought to have, demand it, and, if it is impossible to get it to do the best possible under the conditions and judge results accordingly.

The material should vary according to the grade. The paper in order to

graduate the work from grade to grade need not be ruled in different widths nor of different sizes. It is better by far and cheaper to have it of the same size and width of spacing.

The grades that use pen and ink, of course, need a little better quality of paper than those that use pencil. In the first, second, and even third grades a large soft pencil should be used. Too soft a pencil is not advisable but rather too soft than too hard is advisable as a hard pencil encourages finger movement, it almost demands it.

The use of pen and ink should be begun in the fourth grade. Earlier than the latter half of the third grade should not be attempted. Children in the lower grades find it quite a task to keep their papers neat when ink is used. The pen is too fine an instrument for the child at that age to use.

The grip of the penholder should be made of rubber, wood, or cork. A metal grip is not good because it is generally too small and encourages gripping. The holder should be large enough to be held comfortably, but as hands differ it is hard to give a definite rule.

The steel pen should not be too flexible. The lower grades perhaps should use a coarser pen than the upper grades. Do not allow fountain pens or stub pens.

The ink should be easy flowing and blue or black in color. By corking the well after each lesson dust and dirt will be kept out and the ink will thus remain in fairly good condition.

If writing is done in the first grade it should be done on the blackboard, but if paper work must be done, let it be done on large unruled paper. The paper may be creased in order to produce guiding lines. The size of the fold may in this manner be regulated and varied as the teacher sees fit.

QUALITY OF WORK

AMOUNT OF DETAIL.

The more detail there is in writing the more formal it becomes. The purpose is not to teach formal writing in the grades, but yet enough attention should be given to detail so that writing will not deteriorate. Detail naturally encourages letter form and also slower movement, but as letter form is essential the more the detail the more perfect the letters. In formal writing detail should be emphasized enough so that when informal writing is done the necessary details will occur without conscious effort.

The lower the grade the less the detail in every branch taught. In writing, in order to teach better form it is necessary to teach detail, but the difficulty is overcome by enlarging the work and thus avoiding intricate combinations. Making the work large not only overcomes finger movement but also helps the pupil to see the desired form.

QUALITY OF LINE

The quality of line, of course, depends on the material used. A soft pencil makes a heavy mark as does a coarse pen and black ink. A hard pencil makes a light line and a fine pen and a light ink make a fine line. The movement also regulates the quality of line. A light line of even pressure and without

kinks should always be sought in all grades. Such work will indicate a good movement. Too light a line should not be demanded. It is hard to read; is not used in actual writing; and the production thereof is hard on the pupils physical make up.

The paper also has its influence on the quality of the line. Smooth paper tends to create a fine line while rough paper produces a coarser line.

The personal formula of the writer also effects the line, but in every case the ideal should be sought and encouraged irrespective of the material. Results should be judged according to the circumstances.

MOVEMENT AND SPEED

Movement is a development and speed develops only in proportion to the movement. Finger movement writing by some people can be done very rapidly without a great deal of fatigue. This, however, is not the universal rule. The larger the muscle the less the fatigue but the larger the muscle the more training necessary to produce skill in minute details. A happy combination is therefore perhaps the ideal. To procure this condition, however, it seems necessary to emphasize arm movement because of the fact that the fingers become active without being called into action. Arm movement can be overdone. If movement alone is emphasized the letters will in time become just as illegible as those produced by finger movement.

It should be the teacher's duty from the very beginning to encourage good movement and good movement of the larger muscles especially. By training the larger muscles in the lower grades there is less danger of gripping and cramping. An easy movement is also a time saver.

Movement depends upon position and the position as elsewhere described should be demanded. In the lower grades the whole arm should slide on the cushioned muscle in the forearm and on the last two fingers. The whole arm thus will go through the movement caused by the shape of the letter. At the end of the fourth grade there should be transition to the use of smaller muscles. From here on the arm should remain practically stationary at the elbow and only the forearm be moved.

The amount of speed that is required in any particular grade varies. Any well known scale as mentioned elsewhere will give the standard speed. The standard of these scales is perhaps at a little high as it takes into consideration only specimen work and not the daily work of the pupil which is perhaps a trifle slower. The unit of time used in measuring is a minute during which time a certain number of letters can be produced according to the grade. Letters, of course, vary in size and intricacy, and consequently some demand more time than others. In measuring the number of words written per minute the numbers of letters are divided by five, (five letters is considered the average length of a word). If the pupil writes for more than one minute the total number of letters should be divided by the number of minutes.

The average number of letters to be written per minute is as follows: in the first grade from 20 to 30; in the second grade from 30 to 35; in the third grade from 40 to 50; in the fourth grade from 50 to 60; in the fifth grade from 60 to 70; in the sixth grade from 70 to 75; in the seventh grade from 72 to 76; and in the eighth grade from 76 to 80.

LENGTH AND TIME OF PERIOD

Nowhere, perhaps, more than in the school room is the day too short and the amount of work to be done so stupendous. Every subject demands its rights and wants its quota of time. It is only the efficient teacher who can make the minutes count that can in any small way meet the situation properly. It is not always the length of the period, however, that counts but rather the kind of subject matter that is presented and the manner in which it is presented. The manner in which a pupil responds and reacts should also be a factor in judging what the length of the period should be. Too long a period in penmanship often does more harm than it does good. Shorter periods at more frequent intervals are better than longer periods. Three periods a week at least should be devoted to formal penmanship practice.

In the lower grades from ten to fifteen minutes of actual practice are enough. In the upper grades the period may be lengthened to twenty minutes or perhaps twenty-five at the most. As writing is not necessarily a content subject it is not wise to continue beyond twenty-five minutes. Physical fatigue and mental unrest are liable to set in and then in many cases all that has been gained will be lost. The distribution of paper and other materials should not be counted in the allotted time. Such details and routine should be reduced to the minimum.

The best time of the day for penmanship is just before intermission, preferably in the morning. All subjects, however, clamor for the best period but in spite of this fact writing should not be forced into the poorest period of the day always. So often the last period of the day is devoted to penmanship and then if anything else comes up that seems a little more important writing is absolutely ignored. It is not wise to place penmanship immediately after strenuous exercise. It is also poor policy to precede the writing class with a class in which the pupil is required to sit still for a long period of time. Two or three calisthenic movements before writing class are beneficial and restful if the pupils have been mentally active and physically quiet for a longer period of time.

WHEN SHOULD INSTRUCTION IN WRITING BEGIN?

In spite of the fact that parents and penmanship enthusiasts demand that the writing process should be begun in the first grade and even in the kindergarten, it is nevertheless wise from the physiological and psychological point of view not to begin as early as that. It is perhaps a time honored custom for the youngster to be able to write his name even in the first few weeks of the first year in school. If the child wishes to write his name or perhaps the date and the words "mother" and "father" the right kind of instruction should be given but the idea that he should be forced to develop the art in the first grade is erroneous.

There are other instincts and talents that develop and need attention during these early days before writing and the time that is devoted to penmanship could be spent to more advantage on these. Often something else less taxing and more suited to the age could be taught. The anatomy of the child will be better suited and prepared for the development of writing later on. The

small amount of writing done in the first grade (and the modern school is wisely demanding less and less each year) if writing is not forced upon the pupil, will not harm his possibilities for future development even if he remain untaught. The real formative period in writing has hardly begun as early as the kindergarten and the first grade. There will really be very little to unlearn if the child is untaught until he reaches the second grade. The incidental instructions received will be of little consequence.

In the mental and social development of the human race, writing did not hold the first place but developed much later than many of the other talents. In the mental and social development of the child of to-day the same will hold true. In the physical development of the child also the execution of details and smaller movements and of holding small instruments is out of place. Many centuries elapsed before the human hand became skillful enough in the use of the fine instruments used in writing. The child will use the smaller muscles because of the small instrument and the small work to be done but in the natural unrestricted state he will as a rule very seldom deal with small objects, and the product of his efforts will show very little detail. The ability to demonstrate that the child can perform the certain activities that the teacher exacts of him is no proof whatsoever that they should be required of him. The rule for making demands in teaching ought to depend upon the development of the child rather than upon his ability to perform if forced to do so.

INTEREST AND MOTIVATION

In order to insure results the learner must be interested. If the learner himself, especially in the lower grades, is not interested it is the teacher's duty and privilege to create an interest by proper presentation of the lesson. First of all, the teacher himself must be inspired. Inspiration on the part of the teacher is gained by knowledge of both child and subject. The best and most lasting service that we as leaders often render is to inspire. In penmanship the teacher's own writing should be inspiring. Writing is perhaps one of the most uninteresting subjects to teach unless the teacher himself is enthusiastic over the subject. Often times when the teacher is enthusiastic the time and effort allotted to the subject are increased to a disproportionate amount, and other branches are neglected. The grades are not the place to train experts in any branch.

Intrinsically in every subject there ought to be some quality that, if properly developed and presented, will appeal to the child's several instincts and create an interest and a desire to progress. There are, in the study of penmanship, qualities that create interest and the teacher who is wide-awake and who wishes to succeed is sure to find them. It is often much easier, however, to revert, to external motives such as buttons, certificates and material awards. There is no fault to be found with this method, but would it not be better if something within the subject itself could be made so interesting and inspiring that the pupil would be motivated because of the subject itself. Just a little thought and effort on the part of the teacher will solve the problem of motivation and make the writing class a pleasure.

Writing, though artificial from the very beginning, has many interesting phases for the child, and even its artificiality can be made a means of motivation.

It has many real connections and associations with the life and the presentation of a writing lesson should make use of all possible associations.

Much poor writing, it seems, is due to lack of training on the part of the pupil because of the fact that the teacher has been unwilling to teach the subject for the simple reason that he does not know how to make it interesting. The methods and schemes available in teaching writing are numerous and any catalog that might be given here must be incomplete, for the simple reason that the individual teacher will have ideas of his own. The following suggestions, however, may be helpful; the use of the blackboard, exhibits, rotation of papers, exchange of papers with other classes or schools, races and games of various kinds, characteristic counting, letter building, use of the piano and victrola, grading the work on some standard scale and little trips into history of writing.

The ultimate aim of good writing must, however, always be clearly and firmly held in the minds of teacher and pupil. Definite aims in form, movement, position, and speed, etc. should always be the object in view. The teacher should not be driven to absurd methods of motivation simply for the sake of motivation itself and entertainment. There is a certain amount of drudgery to writing and it cannot be escaped entirely. The ability on the part of the teacher to appreciate good writing, even though not an expert, and the ability to see in penmanship a subject that is not only a motor activity but one that may be developed by appealing to the mentality and intelligence of the child as well as to his actual skill are the prime factors in motivation.

THE BLACKBOARD IN THE SCHOOLROOM.

A schoolroom without a blackboard would be something quite out of the ordinary and the teacher as well as the pupils would find it quite troublesome if such were the case. In spite of the fact that the blackboard is indispensable it is not used as it ought to be used nor to its fullest extent in the average schoolroom.

The teacher through the medium of the blackboard has a very forceful means of teaching writing. The blackboard not only serves as the place where writing may be explained and demonstrated during the formal writing lesson but it is a place where writing that is upon it may serve as a silent influence during every minute of the school day. The writing upon the blackboard should always be of good quality. The teacher who does not place good writing upon the board or who does not demand good writing to be placed there by others who have occasion to use it may do his utmost in other ways to teach penmanship but will yet fall short of getting the best results. The blackboard should always serve as an inspiration. A clean blackboard does not teach bad habits consequently does not encourage poor writing.

On the part of the pupil no better place can be found to secure results when other work on paper has failed. It is here that the details are enlarged enough to be easily mastered. The difficulties, too, of material are not so many and minute. The improvement is about three times as rapid, and this fact acts as a stimulus to the learner. Seeing that he is able to produce on the blackboard and having learned certain facts about the exercise whatever it may be, he feels assured that he can produce it on the paper as well.

The blackboard should be used often by the learner, it matters not what

the age. However, in the case of the first grader it is the only place where writing should be done. The beginner should not be forced to do small work nor to use instruments as small as the pen and pencil and the ordinary sized paper.

In working at the blackboard it is well to rule off spaces similar to those on paper, these lines should be from two to four inches apart. The lower the grade the wider the space. Although the little beginner should be given freedom it does no harm to set certain boundaries for him. Law and order are essential in writing as well as in every other line of endeavor.

The position at the blackboard should be such that the child's left side is turned a trifle toward the board. He should stand about his own arm's length away from the board. All erasing should be done with the left hand, and the eraser should be held in the left hand behind the back in a comfortable position. Practice should be done on the eye level.

Only a half a stick of chalk should be employed and the broken end of the same should be used. The chalk should be rotated occasionally in order to keep it from becoming pointed. The thumb should be placed on one side of the chalk and as many fingers as possible on the other side. This position holds true for the first grade. In the upper grades, however, the chalk should be held by the first and second fingers and the thumb and point toward the middle of the hand.

By all means use the blackboard often and well. Let it be a silent partner in an asset. Let it be inspirational and decorative as well as a practical part of the schoolroom equipment.

SPECIMENS.

It is a good plan to take or rather prepare specimens at certain stated intervals. At the beginning of the school year, in December, in March, and at the close of the year are very good times to prepare the same for preservation. It might be desirable in some cases for the sake of finding out what kind of work is really being done to prepare them at other times also. These specimens for preservation should be kept from year to year in some folder prepared for that purpose. The specimens should be brought out each time a new specimen is added for the sake of comparison. They should be placed in chronological order. The matter written on these specimens should include the figures and as large a number of capitals as possible besides the small letters. The grade, and the name of the child should also appear. Essentially the same material should be written each time in order to make comparison an easier task. It is a good policy to use the wording of one of the standard scales as subject matter for the same, following the directions given. In this manner a scientific basis for judging improvement can be assured. This method of preparing a specimen also affords a means of giving a standing at the end of the term that is nearly perfect, pedagogically and psychologically, as possible.

The children enjoy these specimens and they act as stimuli for better work. It is also an encouragement for the teacher and a means by which the teacher can really know what is being accomplished and how the work compares with work done in other grades and schools and whether or not the child is being prepared properly for the work of the next grade.

SCALES.

There are on the market several different scales which are self-explanatory, and consequently it is unnecessary to describe them. The "Ayers" Gettysburg edition, the "Thorndike" and the "Freeman" scales are the best known:

The use of the scale is beneficial in that it helps to standardize and graduate the work of teaching in a school system and also to set a graded standard for marking. The teacher can then, too, give a scientific reason for marks given on the report card. It also informs the teacher whether or not his work is up to par and in what phase or essential it is falling below. In any subject, whatever, it is not wise to over-train or continue devoting time when the objective has been gained and there are other things to do, and a scale will help the teacher in finding out when the standard of a certain grade has been reached. There are those who believe that the pupil should be excused from any subject when he has attained the standard of his grade and allowed to devote his time and energy on something else, at least until he shows signs of failure to measure up to the standard. If this is done a great deal of judgment must be used.

The pupil also can use the scale for himself by comparing his writing with it and in this manner find out for himself where he is weak and then practice accordingly. It also trains the pupil in judging the good and bad points in his own writing and makes him his own critic. When a child has become his own critic results are sure to follow because then motivation comes from within and not from outside sources.

If possible a scale should be posted in each room easily accessible to the child. Exercises in using the scale should be given so that it will be properly understood by the pupils.

CORRELATION

The real test of writing is its correlation with other subjects. Writing that does not carry over into the written work done in other subjects is of very little value. There must be a distinction made, however, in regard to the quality of work that is to be expected. The distinction will depend upon the conditions of age, material, time, position of writer, knowledge of the content subject involved, and the amount of training which the pupil has in penmanship.

It is true that penmanship is easier to correlate with some subjects, like spelling, than it is with others. It seems though that the real time to emphasize correlation is not during the teaching of the content subject itself. One thing at a time is about all that can be done and done well. The class should be told that penmanship is desired and what some of the general essentials are and the individual may even be asked to be careful in respect to his own particular difficulties if there is time to do so. These suggestions should be offered at the beginning of the period. At the end of the period when the papers are handed in the work should be critisized and remedial suggestions offered. The standing given the paper may also be influenced by the quality of the writing and this fact the pupil should know beforehand.

The real time for correlation seems to be at the time of the formal writing

lesson. That does not mean that other written work should be brought into class and done there for the sake of helping out some teacher or subject, but that work along the line of spelling, arithmetic, and literature which has real penmanship problems to be solved should be presented to the class for exercise purposes. In this fashion the pupil will know how to apply his knowledge when he does other content work. The main subject in such a method of procedure will naturally be penmanship and the content subject will be secondary only. It is not wise to stop the child when busy doing written work in a content subject to criticize his writing or to emphasize penmanship essentials.

Inspire before the written work begins and criticize after, but let the child alone while he is expressing himself. When written work is done in the penmanship class such is not the case. The object is then penmanship only and not the content.

Pride in his work will often help the pupil in his correlation process. Correlation is simply adaptation.

HANDEDNESS

In developing the character of the human race, its many sidedness must be taken into consideration. In developing the physical abilities of man, however, there are only two sides to be considered, namely left and right. This fact is very important in learning to write. Although there are only four percent of the human race that are left handed either by birth or by accident these few persons must be considered and given due attention.

According to authorities there should be no transfer from left to right unless there is absolute certainty that the child is right-handed. The investigation necessary to ascertain this can hardly be made by the teacher and consequently the transfer should seldom be made unless the child is extremely awkward even with the left hand. In no case should the transfer be made without the consent of the parents. Whether the transfer causes the child to stammer or not is not a question to be discussed here. The result that is vital from the teacher's stand point is that the child will not become skillful with either hand.

Writing has developed into a right-handed art, but it must be kept in mind that art was made for the pupil and not the pupil for the art's sake. For this reason, conditions must be made to fit the child and his inborn tendencies. The placing of the paper and the holding of the penholder should be adjusted to fit the left-handed pupil. The left-handed pupil should by no means be ignored. The teacher should try in every way to adjust him. Of course, the left-handed person will find this a right-handed world to a large extent and he will be forced to make the necessary adjustments all along. In the schoolroom the teacher should help him make these adjustments by giving a little extra attention to him. The teacher can not perhaps understand him, but one may rest assured that the pupil has a still harder task trying to understand the teacher and put it into action with his left-hand that which is demanded from the right-handed pupils. He perhaps cannot compete with the right-handed child and his case ought to be treated carefully. He will be less able

to compete, however, if he is deprived of the use of the hand which nature has intended him to develop and which it has endowed with the more skill.

DRILLS AND EXERCISES.

Writing appears on the surface largely as a drill subject and is treated as such in most cases. With most people drill without very much mental effort or knowledge is the only requisite to good writing. This is to a large extent an erroneous conception. Because of the fact that writing is an acquisition apparently of the hand, drill exercises that involve very little mental effort are given in abundance. If, however, a few more mental processes were made use of less drills would be necessary and that which would be used would be of a different type. Drills for the sake of drills have very little or no value. To be sure some drills must be given but they should be of such nature that the desired letter, word, or combination will grow out of them. Quality of line, lightness of touch, and smoothness of movement are just as likely to be developed by drilling on letters and words as by practicing lateral exercises, oval, and push and pull exercises. The movement in these repeating exercises cannot be carried over into words or even letters without being broken up. Words are made up of innumerable quirks and turns and wanton wiles which no oval nor push and pull exercise can help develop. There are too many slurs and accidentals in writing to be much benefited by an exercise that is simply a repetition of one movement. The drill should develop the intrinsic or characteristic part of the letter or word. The letter and even the word itself may be turned into an exercise and constitute a very good drill.

COUNTING.

The universe itself is built on harmony and everything within it possesses the same qualities to a smaller or greater degree. Penmanship, although no built primarily on a rhythmic basis is not entirely an exception. It does possess some qualities that lend themselves to a rhythmic count and cadence. Especially so do the exercises upon which the movements are built. To be sure there are slurs and syncopations of various kinds but the beat and the tempo are there. Individual exercises and letters and groups of similar letters submit very easily to rhythmic counting. At times even words do also.

Counting, especially where a larger group is being taught, helps to unify the work. It keeps the class working together. The slow are spurred on and the rapid ones are slowed down. Drawing is discouraged and scribbling is impeded. Counting procures an easy movement and regulates it. It is one means the teacher has of denoting to the class the amount of speed that is required of the particular grade. Counting keeps the class interested and at work.

There are many ways that may be used in counting. Tapping with a pencil, beating time with a metronome, counting for the letters and even words using the numerical count, calling the letters in a word by name. Humming or singing softly a tune which has the proper tempo, or using the piano or victrola are all worth while methods. Marches and walzes often give the right tempo and rhythm. The human voice, however, as a rule is the very best instrument for counting. It can be modulated and the accidentals and

slurs can be inserted wherever needed. The pupils will be able to count for themselves with very little practice and very good results are produced.

In counting, however, be sure that the pupils are working with the count otherwise the effort is worse than useless. At first, perhaps, some of the pupils will not be able to follow but with a little practice they will be able to do so and their movement will improve in proportion to their ability to follow the count.

CHARACTERISTIC COUNT

Writing is legible only in so far as the different letters are different. As soon as they become alike they lose their character and consequently their value. Each letter has its own outstanding characteristics, for example, the main characteristic of the small "u" is that it has two points at the top and on the other hand the letter "n" is rounded at the top twice. In counting these characteristics may be made use of in two ways. First, in helping the learner to visualize and second in making it possible for the teacher to count practically as rapidly as the pupil can write. The characteristic count also helps the pupil by means of visualization to set his own copy, and this in itself is a splendid means of motivation. To teach without setting a copy may sound absurd but nevertheless it can be done, provided the pupil knows the code which is the characteristic count. It is well to use this count in writing words but the numerical count should be used in more rapid writing after a good copy has been produced with the characteristic count. The characteristic count is adapted to the lower grades while the numerical count to the upper grades. The count that is given for each individual letter may easily be worked into the count for a word but, of course, the final and initial counts must be dropped in most cases.

Capitals do not offer a big problem and consequently the numerical count can be used more effectively perhaps than the characteristic count. Interesting counts of many kinds may be worked out. Never, however, use a count that is too slow. As soon as a pupil is working well shorten the count by dropping the least essential counts.

The counts both numerical and characteristic as well as the approximate number of times a letter ought to be written per minute in the upper grades will be given below. A comma in the numerical counts has no meaning but a dash signifies that a little longer time should be taken where the dash is found. It is well to insert the word *and* in place of the dash and then shorten it to '*nd*'. In the characteristic count the words that are enclosed in parenthesis should be dropped as soon as the letter form or word is well understood. Other counts may be dropped in order to hasten the count. Never allow the count to drag.

Letter	Numerical	Characteristic	Speed per Minute
i	1, 2, 3	point, up, dot	100-120
u	1, 2, 3	point, point, up	70- 80
w	1, 2, 3, -4	point, point, up; (retrace), swing	50 -55
e	1, 2	loop, up	100-120
n	1, 2, 3	over, over, up	60- 70

m	1, 2, 3, 4	over, over, over, up	50- 55
v	1, 2, -3	over, up, (retrace), swing	75- 80
x	1, 2, 3	over, up, cross	75- 80
a	1, 2, 3	'round, point, up	70- 80
o	1, 2, (3)	(up) 'round, swing	80- 90
c	1, 2, (3)	(up) hook, up	70- 80
r	1, -2, 3, 4	up, (dot), down, up	70- 80
s	1, -2, 3	up, (dot), under, up	80- 90
t	1, 2, 3, 4	(big) point, down, up, cross	75- 85
d	1, 2, 3	'round, (big) point, down, up	60- 70
p	1, 2, 3, 4	(big) point, down, 'round, up	60- 65
l	1, 2	(big) loop, up	100-120
b	1, 2, -3	(big) loop, up, (retrace), swing	70- 80
h	1, 2, 3	(big) loop, over, up	60- 70
k	1, 2, -3, 4	(bii loop, over, under, (down), up	50- 60
j	1, 2	point, lower	70- 80
y	1, 2, 3	over, point, lower	70- 75
g	1, 2, 3	'round, point, lower	60- 70
q	1, 2, 3	'round, point, right, up	50- 60
f	1, 2, 3	(big) loop, right, up	60- 70
z	1, -2	over, and, left	70- 75

Letter	Numerical	Characteristic	Speed per Minute
A	1, 2, 3	(big) 'round, down, up	60
U	1, 2, 3	oval, crook, (big) point, up	45
V	1, 2, -3	oval, crook, up, (retrace), swing	45
W	1, 2, 3, -4	oval, crook, (big) point, up, (retrace), swing	40
Y	1, 2, 3	oval, crook, (big) point, lower	40
N	1, 2, 3	oval, crook, over, up	45
M	1, 2, 3, 4	oval, crook, over, over, up	40
T	1, 2, 3, 4	up, down, oval, wave	40
F	1, 2, 3, 4, 5	up, down, oval, wave, cross	40
L	1, 2, 3	loop, down, oval, wave	45
P	1, 2, -3	up, down, 'round	60
B	1, 2, -3, 4	up, down, 'round, 'round, swing	40
R	1, 2, -3, 4	up, down, 'round, slide, up	45
O	1, 2	(big) 'round, swing	60
D	1, 2, 3	down, loop, up, swing	45
C	1, 2	oval, (big) curve	60
E	1, 2, 3	oval, 'round, 'round	45
I	1, 2, 3	up, under, swing	45
J	1, 2, 3	up, down, lower	45
H	1, 2, 3, 4	oval, crook, down, loop, swing	35
K	1, 2, 3, -4	oval, crook, double (curve), slide, up	35
S	1, 2	loop, under, swing	45
G	1, 2, 3, 4	loop, point, under, swing	40
Q	1, 2, -3	oval, curve, oval, wave	45

X	1, 2, 3	oval, curve, curve, up	35
Z	1, 2, -3	oval, curve, loop, left	45
1	1	down	
2	1, 2	dot, curve, swing	
3	1, 2, 3	dot, curve, curve	
4	1, 2, 3	down, wave, down	
5	1, 2, 3	down, curve, swing	
6	1, 2	down, oval	
7	1, 2	wave, down	
8	1, 2	(double) curve, up	
9	1, 2	round, down	

The counts given are only suggestions, others may be evolved that will appeal more to the children.

A MODEL AND AN INDIVIDUAL STYLE OF PENMANSHIP.

It is by no means inconsistent for a teacher to possess and make use of two styles of writing. In English we use two styles and the same is reasonable in writing. The two styles are the formal, model or copy hand and the informal, personal or individual hand. The nearer the informal approaches the formal hand the better. The informal hand should, however, be entirely automatic. The formal hand should adhere to all the rules of good writing, and every effort should be put forth to give every essential its due attention allowing as little individuality to creep in as possible. This style alone should be used and set as a copy. It is not to be used when content is involved and is not automatic.

The informal hand may vary from the formal or copy hand in many ways, but the variations must be consistent and uniform. The slant may be more or less, the spacing may be less compact or extended and the size of the letters may vary as described in the paragraph on alignment. Extreme irregularities should at all times be avoided. The letter forms should always be distinct and well made irrespective of size, slant, spacing or quality of line. This style should never be used as copy. In using this style as a copy the learner will be very likely to copy the individual characteristics which is not the case with the formal style. In copying from the formal style the characteristics that develop will not ruin the pupil's informal penmanship which is being developed. The object of teaching writing in the grades is not to develop a formal style on the part of the pupil but an informal style.

HOW TO STUDY PENMANSHIP

To insure good results the mental forces as well as the physical forces must be mustered. The learning to write is one continual habit forming process. The mental processes must ever be on the alert making adjustments of the body and the material used until the habit of good position has been established. Then there is the study of muscular and nervous responses which must ever be before the pupil until the trick is learned and until quality of line and movement have been mastered. Then again there is the study of the lines themselves and their directions and joinings and relations to other lines in the letter and word.

Because of the fact that writing is a manual art there must naturally be a constant relation between the mental and the physical. To expect the child to do all this is demanding a great deal, but the efficient teacher will by proper kind and amount of instruction help the pupil in solving the problems that confront him. Each of the processes must be studied separately. This study will take place during the formal writing lesson. They must also be studied together in order to become correlated. Each child, however, has his own personal formula with which to contend and consequently has his own problems.

The first problem to study is position. In settling the position problem it is sometimes necessary to adjust and change the seats themselves. A child should have a seat that fits irrespective of his grade. It is very important, however, that the child sit well. Keep on demanding position until it is secured.

The adjustment of wrist, elbow and pen and the manner of supporting the pen need study from time to time in order to obtain the right results as the muscles and the bones of the growing child are making adjustments and developing in the child all along his school years.

A good movement cannot be secured until the problem of position has been solved. It would not be good policy, however, to wait to develop movement until position has been thoroughly mastered because position does not come all at once. When position has been settled the teacher should bring to the child's mind what is meant by quality of line and movement and how to attain them. Any scheme that might produce lightness of touch that is not inconsistent with practical results and work should be utilized. The appeal for lightness of touch should be kept up until the quality suited to the age and the material used has been secured.

The third step in the study of penmanship is form itself as it appears in either exercise, letter or word. Appeal should be made through as many senses as possible. Every avenue of approach should be utilized. Like every other subject writing, to some extent, although an acquired art is within the pupil, at least the component parts are. The love of beauty, the feeling for rhythm and spacing, lightness of touch, ability to move easily and nerve control are all mental or physical qualities and all can be used in making letters even though the letters are artificial. It is to these qualities we must appeal in teaching writing. The study that the pupil does must be along these lines and he must approach the subject from these different avenues.

The three senses that the pupil may and should use are seeing, hearing, and feeling. To use all of them is but to make the subject matter more interesting as well as more intelligible. The eye should grasp the visual demonstration, the ear should grasp the oral directions and the sensory faculties should be made acquainted with the forms by acting them out in the air with a large movement. By using the three senses in this manner a mental image will have been produced so that when the arm is once set into motion on paper or blackboard it will reproduce the form graphically with smoothness of movement and without hesitation.

After the letter or exercise form has been produced on paper or blackboard it should again be studied. Mistakes should be discovered and the good points appreciated. It is just as essential to be conscious of the successes achieved as it is to be sure of failures made. If the attempt has been repaid

it is well to appreciate the fact so that no more time than is necessary will be devoted to it. When one task has been accomplished go on to another. At first the successes will seem to be mere accidents but little by little the failures will be accidents. After the attempt has been diagnosed try again. Rarely try to improve more than one point at a time. Haphazard practice avails nothing. General instructions should never be given, general practice should never be done. It is better by far to make but a few marks with which brains have been mixed than to cover pages with unstudied lines.

In studying penmanship it is a good plan to check up on the results with the list of essentials according to their importance as elsewhere described, in order to find the real trouble. Practice on the essentials that offer the largest difficulties. Study before and after an attempt has been made but never during the actual process of writing. Such a procedure only retards movement and encourages a slow finger movement style of penmanship. The hand ought to go where the head directs. At first the eye helps to direct the hand and pen step by step, in every turn and stroke and the hand follows slowly. When the sense of direction and a certain amount of assurance has been gained, more intricate forms should be attempted and also greater speed. First, the principle, then the letter and finally the word; these are the steps to be followed. Step by step, each larger group should be regarded as a whole and done with a certain amount of abandon forgetting, to an extent, the details. In the formal writing there should be less abandon than in informal work. Teach movement always.

PART TWO

The following pages are devoted to a series of penmanship lessons in keeping with the remarks that have already been made concerning the growth and development of the child and concerning the essentials of the art.

PRINCIPLES UPON WHICH MODERN DAY PENMANSHIP IS BUILT

Present day penmanship can be analyzed into eight basic principles. From these principles it is possible to build with only a few modifications called exceptions all the small and capital letters of the alphabet as well as the figures. As in music there are naturally a few accidentals and slurs to be taken care of as they cannot be classified.

It is possible to evolve all the principles from the ellipse or oval as it is commonly called. This oval is virtually principle six and will be regarded as such. In order to produce the other principles it will be necessary to construct an oval two spaces tall on a thirty degree slant, that is, thirty degrees from the vertical. Draw the long axis and also a horizontal line bisecting the long axis and also the sides of the oval.

Principle one:

The lower end of the long axis will produce or rather be principle one. Principle one consequently is a straight line one space tall made downward.

Principle two:

The lower right hand quarter of the circumference of the oval will be principle two. Principle two therefore is an under curve one space tall and made upward.

Principle three:

The upper left hand quarter of the circumference of the oval will be principle three. Principle three consequently is an over curve, one space tall and made upward.

At times principles two and three will be made downwards. When this occurs they will be spoken of as reversed and an arrow will indicate the direction. The curve in such a case will be somewhat larger.

Principle four:

Principle four is a combination of principles two and one somewhat modified. It is three spaces or rather three units tall in adult writing but for the sake of not making exercises that are too large to manage in the lesson to follow principle four as well as principles five, six, seven and eight will be

made two spaces tall. The curved stroke or principles two, two spaces tall is made first and curves around to the left at the top to meet the down stroke which is principle one made two spaces tall. The two principles cross one space above the base line.

Principle five:

Principle five is a combination of principles one and three lengthened to two spaces. Principle one is made first and goes one space below the base line. It curves around to the left at the bottom and joins principle three, which finishes one space above the base line. The two strokes cross on the base line.

Principle six:

Principle six as described before is an oval two spaces tall. It maybe made either clockwise or counter clockwise. This will depend upon the letter to be developed.

Principle seven:

Principle seven is made from the oval or principle six by drawing a vertical line through the oval and through the lower end of the long axis. This line will, therefore, be a trifle to the left of the long axis at the top. The large curve at the top and the part of the oval to the right of the vertical line will be principle seven. This principle may begin with either a small oval or a dot. Principle eight may begin in the same manner.

Principle eight.

Principle eight is made from principle seven by changing the lower half from a curved line to principle one. It is important to retain the graceful curve at the top. The span of this curve may vary a little but care should be taken not to crowd it. This applies to principle seven also.

In all of these principles the slant should be uniform. Refer to the paragraph on slant in order to solve the slant problem.

Before proceeding it is well perhaps to explain a few terms which are simple enough but which may need some explanation. They are as follows;

A line is the stroke or mark that runs across the paper laterally.

A space is the distance between two lines. Quite often line and space are confused. Care should be taken in this regard.

A unit is one third of a space. In writing done by group three mentioned under "Size of Work" the minumum letters are one unit tall and the others are in proportion.

Base line is the line at the bottom of the space or the line written upon.

Head line is the line at the top of the space. When the exercise is two spaces tall this line in the middle is called the middle line.

A compartment or room (or any name the teacher wishes to give it) is one of the sixteen equal parts into which a space and line have been divided.

A construction is the graphic result produced by following a given set of instructions.

Retrace has two meanings. In building up a letter it means that a part of the line is to be retraced or used twice in order to produce the letter. In

exercise work is simply means that the construction is gone over and over repeatedly.

Omit means to disregard, that is, not to retrace certain parts of the construction. This will occur when parts of the construction are not needed to make the letter.

Study means simply that time enough should be given for a thorough understanding of the principles and the instructions given.

EXPLANATION OF THE LESSON OUTLINES

Each capital and small letter lesson is divided into seven steps. These steps will not be enumerated in each individual lesson outline.

Step one.

Step one indicates the exercise to be practiced. The exercise in each case is intended to develop the essential part of the letter to be taught as well as to develop movement and speed.

Step two.

Step two gives the building process step by step. The different sub-steps are lettered. In building up the letter it is wise to build up only one copy of the letter at a time. After one letter has been constructed and retraced according to step number three one compartment should be skipped and the letter built up again. This process should be repeated until the line is full. Each successive letter or attempt should be made a little better and the teacher should criticise the work after each attempt. If desired the entire line of step four may be done before another letter is constructed.

Step three.

Step three calls for a retracing of the structure developed by step two. This retracing takes place each time a letter has been built up. Retrace to count.

Step four.

Step four calls for writing of the letter freely and without construction lines, to count. Freedom and movement should be demanded.

Step five.

Step five calls for instruction according to grade, or group as mentioned in "Size of Work" under the title "Writing as a growth." The number of letters per line will vary according to the size of the letter. The larger the letter the smaller the number. The teacher should decide this by working out the letter beforehand.

Step six.

Step six introduces a word. Words suitable for each lesson are found on another page. The size of the letters is according to group one. The word after having been written is retraced to count. The teacher may improvise his own count.

Step seven.

In this step the word is reduced according to group and then retraced to count. After the word has been retraced several times several lines should be written without retracing.

FIGURES.

The figure lessons are divided into three steps. Step one is the building process. Step two is retracing and step three is reducing and retracing. Count for the figures also and make them snappy.

PRESENTATION.

In developing a letter it is not to be expected that the seven steps as outlined be completed in one day. From three to five days should be devoted to a letter, that is, to go through every step. The different steps should be divided up so that the lesson material cover the number of lessons devoted to it with an adequate amount of practice for each step. The arrangement will depend upon the school system and the amount of allotted time. The lessons may be so arranged that the small letters and capitals may be taught separately or together. The figures may be taught at any time. It is well, however, to teach no capitals except incidentally in the first and second grades and sometimes even in the third grade. The entire year's work may be devoted to capitals or to small letters as conditions demand. If the capitals are taught alone the order in which they are presented should be followed. If they are taught in conjunction with the small letters it is well not to begin them until the small letter "a" has been reached. The capitals may then be taught in the same order until the capital "A" has been reached. From this point on the capitals and small letters may be taught together using the order of the small letters. A small letter and its capital may then be taught each week.

The writing period should begin promptly. Materials should be distributed in the most efficient manner possible. Begin every lesson with an exercise. Be sure that the child understands every step. Study the results often. Discuss the work. Use the blackboard. Make the class interesting and inspiring. Praise often. Encourage rather than scold. Four things hold in mind always, namely; position, letter form, movement, and speed.

RURAL SCHOOL ADAPTATION.

In a graded school the work will naturally be taught grade by grade and serious difficulties in the division of pupils, and lesson division will not be encountered. In the rural school, however, this is not the case. In order to save time all the grades may be taught together. A twenty minute period is long enough. The pupils should be divided into three groups. This grouping should be according to the groups one, two and three as described under "Size of Work."

Because a pupil is in a certain grade it is not to be understood that he must necessarily be placed in the group that such a grade calls for. If he is able to do the work of the group above, he should be placed there and if he is unable to do the work of his group he should be placed where he belongs. In this manner he will receive the proper development.

The first thing to do is to divide the room into groups. The pupils should understand definitely what groups they are in. It may take a few weeks to do so, however.

According to the lesson outlines steps one, two and three will be taught to all the groups at the same time. With a little practice the lower grades

will be able to keep pace with the older ones. In presenting step five division should be made according to groups. The attention of group number three should be procured first and the pupils of the other two groups go on with their work. Group three should then be instructed to write the letter one third of a space tall. The number of letters to a line and the speed should be indicated by the teacher. The teacher then passes on to group two. Groups one and three remain at work. The size of the writing, the number of letters to a line and the speed should be indicated. The teacher then passes on to group one. Groups two and three remain at work. After all the groups have worked a while on step five the whole room is set to work on step six. All groups receive the same instruction for step six and work together. In presenting step seven the attention of each individual group is secured and set to work separately as in step five. Where the development of a letter is spread through several lessons practically the same process will hold true.

Before starting these lessons be sure that the pupils know the purpose and aim of writing. Keep in mind always that movement is essential in order to produce the proper amount of speed. Never allow the pupil to draw or fall into the habit of using finger movement. Make the lesson an inspiration. Follow instructions carefully and the effort will be productive of good results.

Construction Number One.

Divide the second line on the paper in the middle with a light dot.

Study principle one. On this light dot erect principle one one space tall.

Bisect each half with a dot and erect principle one again on each dot. Bisect each quarter and erect principle one. Bisect each eighth and erect principle one.

In the lower grades folding the paper in order to make lines may be found helpful. The papers produced by pupils who do good work may be given to other pupils who do not grasp instruction easily. In this manner a great deal of explanation may be avoided.

The above process has divided the line and space into sixteen equal parts the result of which will be called construction number one.

Exercise Number One.

Study principle two. Make construction number one and place principle two in each compartment. In doing so principle two begins at the very lower left hand corner and ends in the upper right hand corner of the compartment. This operation will produce a connected series of sixteen up strokes and fifteen down strokes. The exercise is pointed at the top and rounded at the bottom.

Omit down stroke number eight. The result will be exercise number one which contains eight up strokes and seven down strokes. This exercise is contained in eighteen of the small letters.

Retrace to count. The count will be up, down, up, down, etc., at first then 1, 2, 3, 4, 5, 6, 7, 8 or the characteristic count which is point, point, etc., up. Make sure that the pupils make a continuous line retracing both up and down strokes with equal pressure.

Write the exercise as it has been developed without construction lines and retrace to count. Do not let the count drag. Move on.

Reduce the following exercise to group as described in "Size of Work." In the lessons to follow the exercise should be reduced each time. Retrace to count.

"i" lesson.

1. Exercise number one.
2. a. Construction number one.
 - b. In compartments 1 and 2 place principle two.
 - c. Omit down stroke two.
3. Retrace to count.
4. Write without construction lines and retrace to count.
5. Reduce according to grade and retrace to count.

Steps six and seven are wanting in letters i, u, and w.

"u" lesson.

1. Exercise number one.
2. a. Construction number one.
 - b. In compartments 1, 2 and 3 place principle two.
 - c. Omit down stroke number three.
3. Retrace to count.
4. Write without construction lines and retrace to count.
5. Reduce according to grade and retrace to count.

"w" lesson

1. Exercise number one.
2. a. Construction number one.
 - b. In compartments 1, 2 and 3 place principle two.
 - c. Place a dot 1-3 of a space down from the top on principle two in compartment three.
 - d. From this dot make a shallow principle two across compartment four to the top of down stroke number four.
 - e. Omit down strokes three and four.

Steps three, four, and five are the same as in the "u" lesson.

Small loop exercise or exercise number three.

1. Exercise number one.
2. a. Construction number one
 - b. Study principle four. Ordinarily principle four is two spaces tall but in this case it will be made one space tall. The crossing will be about 1-3 of a space from the bottom. On each down stroke except number eight superimpose principle four so that the loop will be on the right

- side of the down stroke and the straight line of the principle will coincide with the down stroke. The up stroke of principle four will in each case begin in the lower left hand corner of the compartment to the left of principle one. The crossing is 1-3 of a space up.
- c. In compartments eight and sixteen place principle two.
 - d. Omit down stroke eight. This process has produced the loop exercise or exercise number three one space tall. Later on the exercise will be made two spaces tall with the crossing half way up.
 3. Retrace to count. The count will be loop, loop, etc., up or 1, 2, 3, 4, 5, 6, 7, up. Try to keep the down stroke straight but not so much as to cause finger movement.

Steps four and five are the same as in previous lessons.

"e" lesson.

1. Exercises numbers one and three.
2. a. Construction number one.
b. On down stroke number one superimpose principle four one space tall as per step (b) in small loop exercise lesson.
c. In compartment 2 place principle two.
d. Omit down stroke number two.
3. Retrace to count
4. Write a line of disconnected e's and retrace to count.
5. Reduce according to grade and retrace to count.
6. Write the word "wee" one space tall. Retrace to count. Be sure that the small retrace in the "w" is well made and that the swing is made low enough to take care of the first "e". The loop in the first "e" is smaller than the second "e." Care should always be taken after letters ending with a swing as does the "w."
7. Reduce according to grade and retrace.

All the different steps have been carried out in the above lesson and in the lessons to follow only the first and second steps will be given in detail. The others are to be carried out as in this lesson. The word for step six is to be found in each case at the head of each group of words found on another page, these words are so arranged that only letters that have been taught are utilized.

The over, over exercise or exercise number two.

1. Wanting
2. a. Construction number one.
b. Study principle number three. In all the compartments except eight and sixteen place principle three. The instruction for placing principle three is the same as for principle two.
c. In compartments eight and sixteen place principle two.
d. Omit down stroke number eight.
3. Retrace to count. The count will be over, over, etc., up or 1, 2, 3, 4, 5, 6, 7, up.

Steps four and five are the same as in exercise number one. Steps six and seven are wanting.

"n" lesson.

1. Exercise number two.
2. a. Construction number one.
 - b. In compartments 1 and 2 place principle three.
 - c. In compartment 3 place principle two.
 - d. Omit down stroke number three.

"m" lesson

1. Exercise number two.
2. a. Construction number one.
 - b. In compartments 1, 2 and 3 place principle three.
 - c. In compartment 4 place principle two.
 - d. Omit down stroke number four.

"v" lesson.

1. Exercise number two.
2. a. Construction number one.
 - b. In compartment 1 place principle three.
 - c. In compartment 2 place principle two.
 - d. On principle two just placed in compartment 2 place a dot 1-3 of a space down from the top. From this dot draw a shallow principle two across compartment three to the top of down number three.
 - e. Omit down strokes two and three.

"x" lesson

1. Exercise number two.
2. a. Construction number one.
 - b. In compartment 1 place principle three.
 - c. In compartment 2 place principle two,
 - d. In compartment 1 bisect the base line with a dot. Bisect the head line of compartment two.
 - e. Between these two bisecting dots draw a straight line upwards.
 - f. Omit down stroke number two.

"a" lesson.

1. Exercise number one.
2. a. Construction number one.
 - b. In compartments 1 and 2 place principle two.
 - c. In compartment 1 also place principle three. Principle three is made in reverse order. Principles two and three together form a rather narrow oval.
 - d. Omit down stroke number two.

"o" or oval exercise.

1. Wanting
2. a. Construction number one.
 - b. Study principle six. On all down strokes except eight construct a

- narrow oval one space tall using the down stroke of the construction as the long axis.
- e. In compartments 1 and 9 place principle three.
 - d. Between the tops of all down strokes except between eight and nine draw a horizontal line that is almost straight but with a very slight sag in it.
 - e. Omit all the straight down strokes.
3. Retrace to count. In retracing this exercise it is a very good policy to retrace each separate oval from five to ten times before swinging to the next one. The count in this case will be 1, 2, 3, 4, 5 glide or swing etc. to the end. In retracing the oval only once each time the count will be 1, glide, 2, glide etc. Count up for the beginning strokes. Steps four and five are the same as in the other exercise developments.

"o" lesson.

1. The "o" exercise.
2. a. Construction number one.
 - b. On down stroke number one place a narrow principle six.
 - c. In compartment one place principle three.
 - d. In compartment two between down strokes one and two place a horizontal line with a shallow sag in it.
 - e. Omit down strokes one and two.

"c" lesson.

1. Exercises one and two.
2. a. Construction one.
 - b. In compartment 1 place either principle two or three. Neither one of these principles will produce absolutely the correct form but it is the nearest approach possible.
 - c. In compartment two place principle two.
 - d. To the right side of the down stroke number one add a little hook or small arch about one quarter of a compartment in width. This is added at the top.
 - e. Omit down stroke number two.

"r" lesson.

1. Exercise number one.
2. a. Construction number one.
 - b. In compartments 1 and 3 place principle two.
 - c. Place a dot 1-3 of a space down from the top on down stroke number two. From the top of down stroke number one to this dot draw a straight line.
 - d. To the top of down stroke number one add a very short principle one, projecting above the headline.
 - e. Omit down strokes one and three and the part of down stroke two that is above the dot.
3. Retrace to count. In retracing the slight projection above the headline is a retraced stroke, that is, it is made both going up and coming down.

"s" lesson.

1. Exercise number one.
2. a. Construction number one.
 - b. In compartments 1 and 2 place principle two.
 - c. On principle two in the first compartment place a dot one third of a space up from the bottom. Study principle two again. Principle two will be made down or reversed in this case. It will bulge a trifle more. Begin at the top of down stroke number one, curve out to the right and then bring it back to the bottom of down stroke one. Then curve it up to the dot in compartment one.
 - d. To the top of down stroke one add a very short principle one.
 - e. Omit the straight down stroke.
3. The retrace at the top is the same as in the "r." A good continuous exercise is made by joining several s's.

"t" lesson.

1. Exercise number one.
2. a. Construction number one.
 - b. In compartments 1 and 2 place principle two.
 - c. To the top of down stroke number one add principle one, one space tall. This will make the down stroke two spaces tall.
 - d. In the upper principle one place a dot $\frac{1}{2}$ a space down from the top. Through this dot draw a horizontal straight line extending about 1-3 of a compartment on either side.
 - e. Omit down stroke number two.
3. In retracing avoid a loop at the top.

"d" lesson.

1. Exercise number one.
2. a. Construction number one.
 - b. In compartments 1 and 2 place principle two.
 - c. In compartments one also place principle three as in step (c) of letter "a"
 - d. To the top of down stroke number one add principle one, one space tall.
 - e. Omit down stroke number two.

"p" lesson.

1. Exercises number one and two.
2. b. In compartments 1 and 2 place principle two.
 - c. In compartment 2 also place principle three as in step (c) of letter "a"
 - d. To the top and bottom of down stroke number one add principle one, one space tall. The whole straight down stroke will thus be three spaces tall. A little difficulty may be found in making this letter, but be sure that the instructions are carried out. In more mature writing a loop may be made below the line.
 - e. Omit down stroke number two.

If a final upstroke is wanted a principle two may be added.

Loop exercise or exercise number three.

This exercise is the same as described previous to the "e" lesson only differing in the point that it is two spaces tall and crosses half way up. In reducing this exercise according to grade, and in reducing all letters that contain this loop there will according to the paragraph on "Size of Work" be only two sizes, namely two spaces and one space. The height of the letter will, however, be only one third of a space up in group number three and half a space in group number two.

"l" lesson.

1. Exercise number three.
2. a. Construction number one.
 - b. To the top of down stroke number one add principle one, one space tall. On this tall stroke superimpose principle four.
 - c. In compartment two place principle two, one space tall.
 - d. Omit down stroke number two.

"b" lesson.

1. Exercise number three.
2. a. Construction number one.
 - b. As in step (b) of letter "l."
 - c. In compartment 2 place principle two one space tall.
 - d. In the principle two just placed, place a dot as in step (d) in letter "v" and construct principle two as described.
 - e. Omit down stroke number two and three.

"h" lesson.

1. Exercises two and three.
2. a. Construction number one.
 - b. As in step (b) of letter "l."
 - c. In compartment 2 place principle three one space tall.
 - d. In compartment 3 place principle two one space tall.
 - e. Omit down stroke number three.

"k" lesson.

1. Exercises three and two.
2. a. Construction number one.
 - b. As in step (b) of letter "l."
 - c. In compartment three place principle two, one space tall.
 - d. At the top end to the right of down stroke number two so that the blue line on the paper will be the long axis construct a horizontal oval about $\frac{1}{4}$ of a compartment in length.
 - e. In compartment two place principle three so that it finishes at the top side of the horizontal oval.
 - d. Omit down stroke number three.
3. In retracing do not close the little oval on the left side. Be sure to keep the short down stroke straight. The oval part extends just a trifle above the space.

Lower loop exercise or exercise number four.

1. Wanting.
2. a. Construction number one.
 - . b. To the bottom of each down stroke except number eight add principle one. This will make the stroke two spaces long, one space above and one space below the baseline. Study principle five. As explained under "Principles" there is a little discrepancy in this principle in that the finish in the up stroke above the crossing varies according to the letter that follows. When a letter begins with a principle three there is no change, but when it begins with a principle two there is. The stroke really becomes a double curve and it will be impossible to absolutely take care of this stroke. If any angles are formed in building a letter or exercise they should be rounded off.
 - c. Dropping the part of the upstroke that continues above the baseline superimpose the loop part on the long down strokes. The straight stroke of principle five will coincide with the straight stroke and the loop will be to the left.
 - d. In all compartments above the base line place principle two except in eight and sixteen.
 - e. In compartments eight and sixteen place principle three.
 - f. Omit down stroke number eight.
3. Retrace to count. The count will be point, lower, lower, etc. or up, 1, 2, 3, 4, 5, 6, 7.

"j" lesson.

1. Exercises one and four.
2. a. Construction number one.
 - b. To the bottom of down stroke number one add principle one, one space tall. On this long stroke superimpose principle five, that is the loop part only.
 - c. In compartment 1 place principle two.
 - d. In compartment 2 place either principle two or principle three.
 - e. Omit down stroke number two.

"y" lesson.

1. Exercise number two and exercise number four.
2. a. Construction number one.
 - b. In compartment 1 place principle three.
 - c. In compartment 2 place principle two.
 - d. As in step (b) of letter "j."
 - e. In compartment three repeat step (d) of letter "j."
 - f. Omit down stroke number three.

"g" lesson.

1. Exercises number two and four.
2. Repeat all the steps of letter "j" in order, including step (d).
 - e. In compartment one place principle three reverse as in step (c) of

letter "a."

- f. Omit down stroke number two.

"q" lesson.

1. Exercise number one. The oval exercise developed for the small "o" may be used but the oval will be retracted in the reverse order.
2. a. Construction number one.
b. To the bottom of down stroke number one add principle one, one space tall.
c. On the right hand side of the part that extends below the base line construct the right side half of principle six, making it very narrow, and closing it on the baseline.
d. In compartments 1 and 2 place principle two, above baseline.
e. As in step (c) of letter "a."
f. Omit down stroke number two.

"f" lesson.

1. Exercise number one and the exercise used for the letter "q."
2. a. Construction number one.
b. In compartment 2 place principle two.
c. As in step (b) of letter "l."
d. As in step (b) of letter "q."
e. As in step (c) of letter "q."
f. Omit down stroke number two.

"z" lesson.

1. Exercise number three and the oval used in letter "q."
2. a. Construction number one.
b. In compartment 1 place principle three.
c. Bisect the baseline of compartment 2. From the bisecting dot construct principle one downward one space. Using this downward stroke as the long axis construct a very narrow principle six.
d. From the bottom of the stroke number one construct a small arc about one quarter of a space tall so that the left end touches the down stroke and the right end touches the top of the oval.
e. From the top of the oval to the top of down stroke number three construct a principle three
f. Omit the straight stroke below the line and also down strokes numbers two and three.

CAPITALS.

Capitals were devised as a means of punctuation and emphasis. As will be noticed there are very few of them to a written page, consequently in actual work less practice is often secured. When they are needed, however, they should be in keeping with the small letters in quality and for this reason it is necessary to practice them just as much as the small letters.

In the lower grades very few capitals are needed and when they are needed, the child may be helped by the teacher. Formal drill is not absolutely necessary in the first, second and third grades.

The capitals may be taught in groups according to their general appearance and principals. It is well to teach members of a group consecutively, but is not necessary to arrange the groups in any certain order. The simpler ones should, however, be taught first, and the more difficult ones attempted later on. By the time that the child has learned the small letters he will be able to better understand the capitals.

The size of the capitals is dealt with under the paragraph on alignment. Capitals may be connected with the following small letter but "O," "D," "F," "P," "T," "V," "W" should only be connected in rapid adult writing.

"A" lesson.

1. Exercise number one made two spaces tall. The oval exercises, direct and indirect have not been used a great deal so far in these lessons. In the capitals, however, it may be desirable and even advisable at times to do so. In case an oval exercise is desired principal six may be retraced with an unbroken movement from five to ten times. Clockwise is indirect and counterclockwise is direct. The oval exercise will be called exercise number five direct or indirect as the case may be. In the letter "A" we shall use exercise five direct, two spaces tall.
2. a. Construction number one.
b. To the top of down stroke number one add principle one one space tall.
c. In compartment 1 place principal two two spaces tall.
d. In compartment 2 place principal two one space tall.
e. In compartment 1 place principle three two spaces tall reversed as in step (c) of letter "a."

"U" lesson.

1. Exercise number one two spaces tall.
2. a. Construction number one.
b. On down strokes one and two repeat as in step (b) of letter "A."
c. Study principal eight. On down stroke number one superimpose principal eight. In doing so the hook part extends about $\frac{1}{2}$ a compartment to the left of down stroke number one and the down stroke coincides with down stroke number one.
d. In compartment 2 place principle two two spaces tall.
e. In compartment 3 place principle two one space tall.

"V" lesson.

1. Exercise one two spaces tall.

2. a. Construction number one two spaces tall.
- b. As in step (c) of letter "U."
- c. In compartment 2 place principle two, two spaces tall
- d. In principle two place a dot 1-3 of the distance down from the top and repeat as in step (d) of letter "v."
- e. Omit down strokes numbers two and three.

"W" lesson.

1. Exercise number one two spaces tall.
2. a. Construction number one two spaces tall.
- b. As in step (c) of letter "U."
- c. In compartments 2 and 3 place principle two two spaces tall.
- d. As in step (d) of letter "V."
- e. Omit down strokes two and three and four.

"Y" lesson.

1. Exercise number one two spaces tall.
2. a. Construction number one.
- b. To the tops of down strokes one and two add principle one, one space tall.
- c. To the bottom of down stroke number two add principle one one space tall. On the part that extends below the baseline superimpose principle five.
The up stroke of principle five will finish at the top of down stroke number three.
- d. On down stroke number one superimpose principle eight.
- e. In compartment two place principle two two spaces tall.
- f. Omit down stroke number three.

"N" lesson.

1. Exercise number two two spaces tall.
2. a. Construction number one.
- b. To the top of down strokes one and two add principle one one space tall.
- c. Place a dot just atrifle from the top of down stroke number two. In compartment number two place principle three so that the upper end finishes in the dot placed in the down stroke.
- d. On down stroke number one superimpose principle eight.
- e. In compartment 3 place principle two one space tall.
- f. Omit the part of down stroke number two that is above the dot and also down stroke number three.

"M" lesson.

1. Exercise number two two spaces tall.
2. Construction number one.
- b. To the tops of down strokes one, two and three add principle one, one space tall.

- c. As instep (c) of letter "N." Do the same in down stroke number three, placing the dot just a trifle lower still, and fill in compartment number three.
- d. In compartment 4 place principle two one space tall.
- e. As in step (d) of letter "N."
- f. Omit the parts of the down stroke above the dots and also downstroke number four.

The Wave Exercise.

Divide the line into sixteen equal parts. In compartments 1 and 2 construct a horizontal oval whose length or rather whose long axis is the length of the line between the dots. Beginning at the left end of the first oval retrace the top of the first oval to the point where it touches the second oval and without breaking the smooth curve retrace the bottom side of the second oval over to the extreme right end. This will produce the wave like stroke to be used in several letters. If a continuous retrace exercise is desired the stroke maybe continued over the top of the second oval and then underneath the first oval. Retrace from five to ten times with a smooth line. In using this wave in a letter it may begin with a dot, or small oval, indirect

"T" lesson.

1. Exercise number one two spaces tall and the wave exercise.
2. a. Construction number one.
- b. To the top of down stroke number one add a principal one one half a space tall.
- c. Bisect the baseline of compartment number 1. From this bisecting dot construct a principal two to the top of down stroke number one.
- d. Above the down stroke place the wave already developed so that the upward bulge will fit over the stroke but without touching the top of the same. The top of the bulge should touch the headline. The wave should almost be two compartments in length.

"F" lesson.

Repeat the entire process of letter "T."

2. e. Across the middle of both the principle two and principle one place a short horizontal stroke with a very short principle one made down at the right hand end close to the main down stroke.

"L" lesson.

1. Exercise five direct and the wave exercise.
2. a. Construction number one.
- b. To the top of down stroke number one add principle one one space tall.
- c. Bisect the baseline of compartment number 1. From this bisecting dot construct principle two one space tall touching the down stroke half way up or on the middle line.

- d. Bisect the headline of compartment 2. From the point where the middle line crosses the down stroke construct a principle three, one space tall to the bisecting dot.
- e. Bisect the middle line in compartment number 1. From this bisecting dot construct a principle two one space tall to the bisecting dot in compartment 2.
- f. From the bisecting dot in the baseline of compartment 1 construct the wave just developed so that it will extend into the next compartment to the right.
- e. Omit down stroke number one.

"P" lesson.

- 1. Exercise number one and five indirect.
- 2. a. Construction number one two spaces tall.
- b. Bisect the middle line of compartment 1. From this bisecting line construct principle two to the top of down stroke number one.
- c. In the upper half of compartment 2 place principle six indirect allowing it to overlap into the lower half of the compartment. From the lower end of the oval extend a curved line upward and leftward to the down stroke or just a trifle beyond.
In retracing omit the left side of the oval and swing into the line extending leftward from the bottom of the oval.

"B" lesson.

- 1. Exercise numbers one and five indirect.
- 2. a. Construction number one two spaces tall.
- b. As in step (b) of letter "P."
- c. In the upper half of compartment 2 place principle six indirect.
- d. In the lower half of compartment 2 place principle six indirect allowing it to overlap a trifle into the upper half.
- e. Place a dot half way up on the left hand side of the lower oval. From this dot draw a horizontal line with a slight sag in it either partly across the lower oval or entirely across.
- f. In retracing omit the left hand side of the two ovals. Retrace the small oval produced by the overlapping of the two larger ovals. Make a good point where the horizontal stroke joins on.

"R" lesson.

- 1. Exercise numbers one and five indirect.
- 2. Construction number one.
- b. To the top of down stroke number one add principle one one space tall.
- c. As instep (b) of letter "P."
- d. As instep (c) of letter "P."
- e. Bisect the baseline of compartment 2. From the point where the extension from the oval crosses the down stroke after having made a small horizontal loop draw a straight line to the bisecting dot.

- f. From the same bisecting dot construct a principle two in the same compartment one space tall.
- g. In retracing omit the left side of the oval and down stroke two.

"O" lesson.

1. Exercise five direct.
2. a. Construction number one two spaces tall.
b. In compartment two construct principle six two spaces tall.
c. In the upper right hand quarter of the principle six place a small principle six about a half a space tall and a trifle on the circular order.
d. Bisect the headline of compartment number 3. From the lower end of the small principle six construct a principle two to the bisecting dot.
e. In retracing omit the right side of the small oval and all straight down strokes.

"D" lesson.

1. Exercise number five direct.
2. a. Construction number one two spaces tall.
b. As in step (b) of letter "O."
c. As in step (c) of letter "O."
d. As in step (d) of letter "O."
e. In the lower right hand corner of the lower part of compartment number 1 place a small principle six indirect one half a space tall.
f. Omit all straight down strokes. In retracing start at the top and go counterclockwise, pass from the large oval to the right side of the small oval. Go up on the left side of the small oval and after having passed over the top go to the underside of the large oval and pass up on the right hand side of the large oval. Finish like the "O." Retain the small open triangular space at the bottom, between the small and large ovals.

"C" lesson.

1. Exercise number five direct.
2. a. Construction number one two spaces tall.
b. As in step (b) of letter "O."
c. Within principle six in the lower right hand corner of the upper half of the compartment place a small principle six one half a space tall.
d. Bisect the middle line of compartment 3. From the lower end of principle six (the large one) construct principle two to the bisecting dot.
e. Omit all straight strokes and the lower right hand quarter of the large principle six. In retracing retrace down the left side of the small oval.

"E" lesson.

1. Exercise number five direct.

2. a. Construction number one two spaces tall.
- b. In the upper half of compartment 2 place principle six direct.
- c. In the lower half of compartment 2 place principle six direct so that it overlaps a trifle into the upper half.
- d. About one half way up on the right side in the upper principle six construct a small principle six about one half a space tall. It is direct.
- e. Bisect the middle line of compartment 3. From the lower end of the lower principle six construct principle two to the bisecting dot.
- f. Omit all straight down strokes. The retracing is done clockwise beginning with the small oval. Be sure to retrace the small oval produced by the overlapping of the two larger ovals.

“I” lesson.

1. Exercise number five indirect.
2. a. Construction number one, two spaces tall.
- b. In compartment number two place principle six indirect two spaces tall
- c. A trifle to the left of the center, or to the left of the long axis draw a straight line paralleling the long axis.
- d. Bisect the baseline of compartment number 1. On the bisecting dot construct a principal one $\frac{1}{2}$ a space tall.
- e. From the point where the middle line crosses the line drawn to the left of the axis to the top of the short principle one construct a reverse principle two as described in step (c) of letter “s”
- f. From the top of the short principle one construct a horizontal line with a slight sag in it rightward.
- g. Omit down strokes numbers one and two and the short down stroke. In retracing go up on the left hand side. Omit right side of the oval.

“J” lesson

1. Exercise number five indirect.
2. a. Construction number one two spaces tall.
- b. As in step (b) of letter “I.”
- c. Construct the long axis of principle six extending it one space below.
- d. On the part that extends below the line superimpose principle five so that the upward stroke crosses the straight line on the baseline and extends upward about a half a space.
- e. Omit down strokes one and two and the right side of principle six. In retracing go up on the left side. The lines meet three times on on the line.

“H” lesson.

1. Exercise number two and five indirect.
2. a. Construction number one two spaces tall.
- b. On down stroke number one superimpose principle eight. Principle seven may be used if desired.
- c. Study the upper right hand quarter of principle six. Place this part of principle six in the lower half of compartment 2. The lower right

hand end of it will begin at the lower end of down stroke number two and the upper left end of it will touch downstroke number one at the point where the middle line crosses it.

- d. From the point where the above stroke touches principle eight construct a horizontal stroke rightward across down stroke number two. Step (c) and step (d) will form a small loop almost horizontal.

"K" lesson.

1. Exercise number two and the wave exercise made one space tall.
2. a. Construction number one two spaces tall.
b. As instep (b) of letter "H."
c. Find the diagonal middle of the upper half of compartment two. From this point construct a principle three $\frac{1}{2}$ a space tall to the top of down stroke number two. From the point where the middle line crosses the principle eight construct a principle two $\frac{1}{2}$ a space tall the diagonal center.
d. As instep (e) of letter "R."
e. As in step (f) of letter "R."
f. Omit down stroke number two.

"S" lesson.

1. Exercise number three and the small letter "s" may be used as an exercise.
2. a. Construction number one two spaces tall.
b. In the upper half of compartment number 2 place principle six allowing it to overlap into the part below.
c. Bisect the baseline of compartment number 1.
d. Bisect the headline of compartment number 2. From the bisecting dot in compartment 1 to the bisecting dot in compartment 2 construct a principle two two spaces tall.
e. Place a dot about 1-3 of a space up from the bottom on the principle two just erected. From the point where the principle two crosses the left side of the oval to the point just placed construct a reverse principle two as described in step (c) of letter "s."
f. The end may be brought leftward and finished like the "B" if desired.
g. Omit all straight down strokes and the right side of principle six.

"G" lesson.

1. As in letter "S."
2. a. As instep (a) of letter "S."
b. As instep (b) of letter "S."
c. As instep (c) of letter "S."
d. As in step (d) of letter "S."
e. Place a dot about 1-3 of a space up from the bottom on principle two just erected.
f. Place a dot about half way up on the right side of principle six from this dot to the dot in principle two construct a reverse principle two as in step (c) of letter "s." It may finish as the letter "S."

g. Omit all straight down strokes and the upper right quarter of the oval.

"Q" lesson.

1. Exercise number five indirect and the wave exercise.
2. a. Construction number one two spaces tall.
 - b. On down stroke number one place principle seven. In placing this principle it will virtually be placed in compartment number one. It touches the down stroke twice.
 - c. At the lower end of the principle seven place the horizontal wave as described in letter "L." A small loop will be formed. It is oblique.
 - d. Omit all straight down strokes.

"X" lesson.

1. Exercise number five indirect and direct.
2. a. Construction number one two spaces tall.
 - b. As in step (b) of letter "Q."
 - c. Using down stroke number two as the long axis of an oval construct principle six direct. Principle six should be tangent to principle seven.
 - d. Omit all straight down strokes and also the upper right hand quarter of principle six.

"Z" lesson.

1. Exercise number five indirect.
2. a. Construction number one two spaces tall.
 - b. As in step (b) of letter "Q."
 - c. Bisect the baseline of compartment number two. From this bisecting dot construct principle one one space tall downward. Repeat step (b) of letter "z."
 - d. From the lower end of principle seven make a low arc (the right end of which) will rest in the top of the oval below the line. A small loop will be formed between principle seven and the arc.
 - e. Repeat step (d) of letter "z."
 - f. Omit all straight down strokes.

A list of Words Suitable for Practice.

“e”	T “n”	“m”	“v”	“x”
wee	new	men	vim	vex
we	wine	mine	vein	vixen
ewe	win	mien	view	mix
	nun	menu	vine	nux
		emu	vive	nix
“a”	“o”	“c”	“r”	“s”
axe	amo	coax	rice	roses
wax	moan	cow	race	score
wane	woe	caw	care	scare
man	won	cocoa	crow	raise
van	mow	coon	crown	sir
“t”	“d”	“p”	“l”	“b”
trees	tide	deep	pile	bulb
wrist	dart	drip	lapse	build
towns	dust	drop	pearl	broil
vast	dirt	pen	split	bawl
waste	dad	poem	place	bubble
“h”	“k”	“j”	“y”	“g”
hub	hike	joke	jay	gay
hobo	khaki	jack	joy	gaily
head	brick	juice	juicy	guy
habit	chalk	jerk	jelly	young
breath	blank	just	yes	giggle
“q”	“f”	“z”		“I”
quag	quaff	fuzz		Ionia
quay	fancy	freeze		Iva
quagmire	flog	froze		Indiana
queue	fair	frenzy		Illinois
quack	forest	zero		Irish
“U”	“W”	“E”	“N”	“M”
Unum	Winnow	Even	Newman	Mamma
Union	Willow	Ease	Noon	Moon
United	Wigwam	Eraser	Norman	Monument
Usual	Window	Erie	Nonesense	Museum
Uruguay	Warsaw	Eaves	Nation	Mormon
“V”	“X”	“A”	“O”	“C”
Vivian	Xenia	Anna	Omen	Cocoa
Valve	Xerxes	Alaska	Ohio	Cactus
Vivid	Xebec	America	Ontario	Cocaine
Vesuvius		Armenia	Otto	Cadillac
Velvet		Alabama	Octopus	Cascade

"R"	"S"	"T"	"D"	"P"
River	Sesame	Totem	Dundee	Puppy
Rumor	Success	Tantrum	Dum dum	Paper
Robert	Session	Turtle	Dandelion	Pepper
Ranger	Scissors	Tent	Diamond	Plump
Rooster	System	Tooter	Dandy	Pope
"L"	"B"	"H"	"K"	"J"
Lillian	Bamboo	Hurrah	Khaki	Joujou
Llama	Bubble	Helen	Kankekee	Jimjams
Little	Bobolink	Heathen	Kokomo	Jungle
Lloyd	Babylon	Hallelujah	Kodak	July
Lola	Baboon	Heather	Kentucky	Jollity
"Y"	"G"	"Q"	"F"	"Z"
Yule	George	Quagmire	Fife	Zeus
Yesterday	Georgia	Queen	Fifty	Zion
Yearly	Gregory	Quail	Fluffy	Zebra
Yale	Granger	Quince	France	Zebu
Youth	Gauge	Quill	Faith	Zulu

FIGURES

There is no context in figures and consequently they must at all times be made well in order to avoid misunderstandings. In commercial life it is also very essential that they be well formed and accurately made so that there will be no chance of forgery. Poorly written figures can be more readily changed than well made characters. The size of the figures does not depend very much upon the letters but varies according to the space in which they must be written. The space that is allotted to figures in most cases is very small, and consequently the figures are small also. It is difficult to arrange figures in columns when vertical lines are not printed. When lines are not printed a column is procured by placing the top of the figures under each other. In writing figures, especially, when they are very small, it is necessary to use finger movement.

“1”

1. a. Construction number one two spaces tall.
b. Figure “1” is simply principle one with a slight pressure at the top or bottom, preferably at the top.
c. Reduce to the size that is wanted. This will pertain to all figures.

“4”

1. a. Construction number one two spaces tall.
b. On down stroke number one place a dot one half a space from the bottom.
c. From this dot draw a wave across the compartment two and about one third across compartment three.
d. Omit the part of down stroke one below the dot. Retrace to count.

“7”

1. a. Construction number one two spaces tall.
b. On the headline of compartment number one place a dot one third of the width of a compartment away from the left end of the compartment.
c. From this dot draw a wave that will join down stroke number one at the top at a point. The wave may begin with a little dot.
d. Retrace to count.

“6”

1. a. Construction number one two spaces tall.
b. In compartment number two just a trifle to the right of down stroke number one place a small principle six one half a space tall.
c. Connect the down stroke with the oval to the right by a slightly curved line which connects gradually with the underside of the oval.
d. Retrace to count.

“9”

1. a. Construction number one two spaces tall.
- b. In the upper half of compartment number one place principle two one space tall.
- c. In the upper half of compartment number one also place principle three reversed as in the small letter “a.”
- d. Retrace to count.

“2”

1. a. Construction number one two spaces tall.
- b. On down stroke number one place principle seven.
- c. On down stroke number two place a dot two thirds of a space up from the bottom. From the bottom of principle seven to the dot draw principle three. A little loop, oblique, will thus be formed between principles seven and three. If desired a straight line may be substituted for principle three.
- d. Omit all straight down strokes. Retrace to count.

“3”

1. a. Construction number one two spaces tall.
- b. On down stroke number one place a dot a little less than one half the distance down from the top.
- c. On down stroke number one also place principle seven so that it begins not higher up than the dot just placed. Continue the lower part of principle seven half a compartment and upward half a space as in figure “5.”
- d. Between the dot and the top of the downstroke place a small principle seven. The lower end of the top principle seven and the upper part of the lower principle seven will form a small loop.
- e. Omit all straight down strokes. Retrace to count.

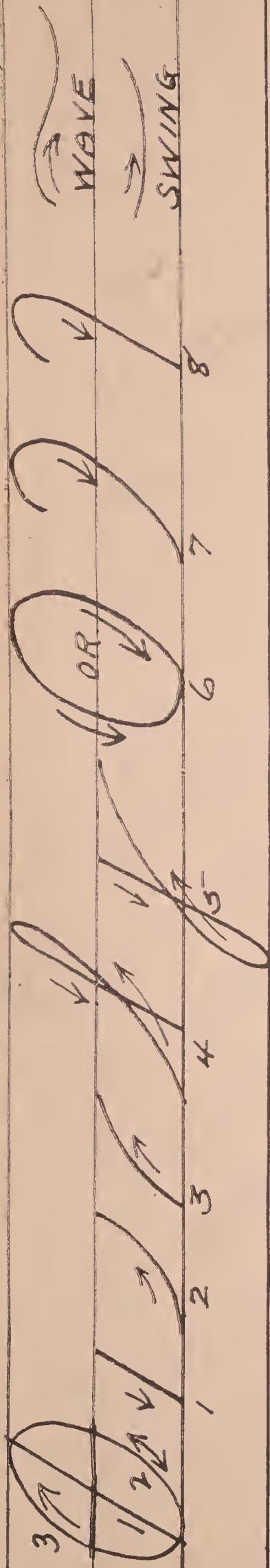
“5”

1. a. Construction number one two spaces tall.
- b. On down stroke number one place a dot one third of the distance down from the top.
- c. On the same down stroke place principle seven so that it begins not higher up than the dot. Principle seven will consequently not be full two spaces tall. Continue the lower part of principle seven leftward half a compartment and upward half a space into compartment one.
- d. To the top of down stroke number one on the headline add either a straight line or a small wave or a swing about one half a compartment in length to the right.
- e. Omit down stroke number two and also the part of down stroke number one below the dot. Retrace to count. In retracing the pen or pencil is lifted and the wave at the top is made last.

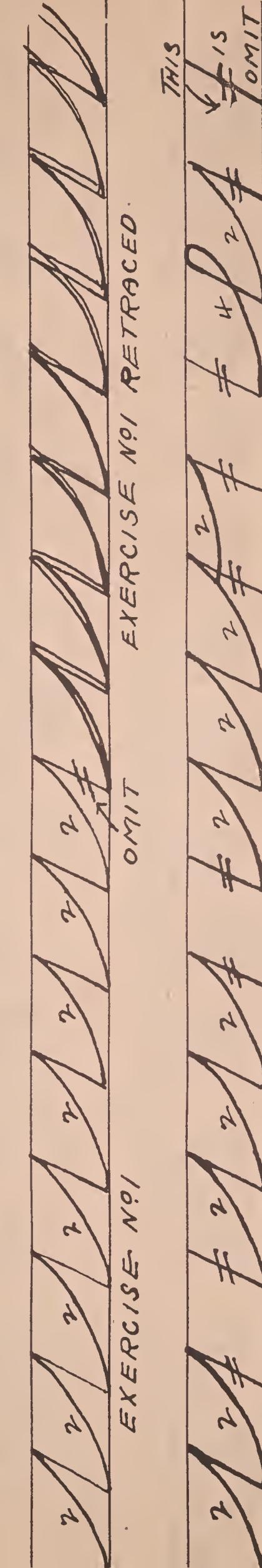
"8"

1. a. Construction number one two spaces tall.
- b. Place principle six in the upper half of compartment number two and also in the lower half.
- c. Draw the long axes of these two ovals. Naturally the axes will form one straight line which is parallel to the principle one.
- d. Omit down strokes one and two and the right side of the upper oval and the left side of the lower oval. Retrace to count. In retracing commence at the top passing down on the curved line, counter clockwise, crossing the straight stroke half way down. Come up on the straight stroke. At the top of the straight stroke a short principle one should be added.

PART THREE



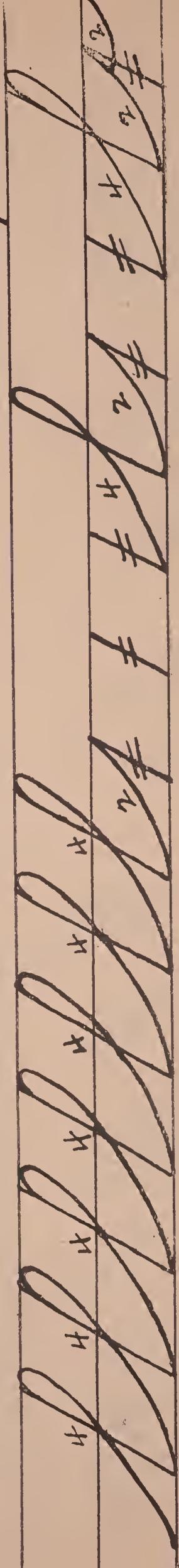
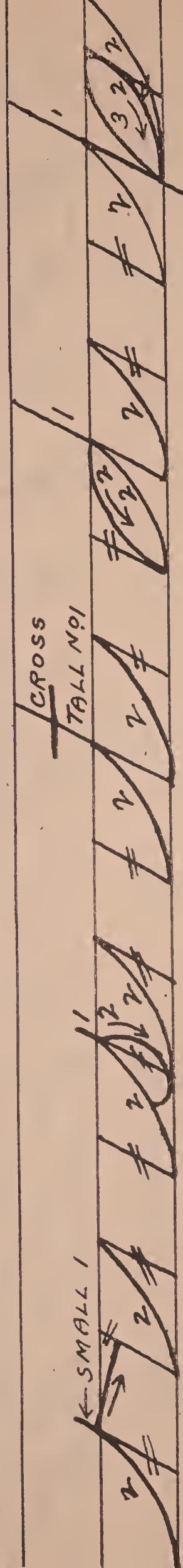
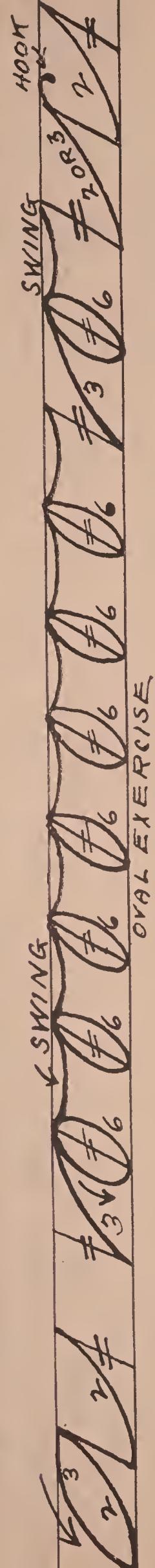
CONSTRUCTION N°1.



EXERCISE NO.1 RETRACED.
OMIT THIS

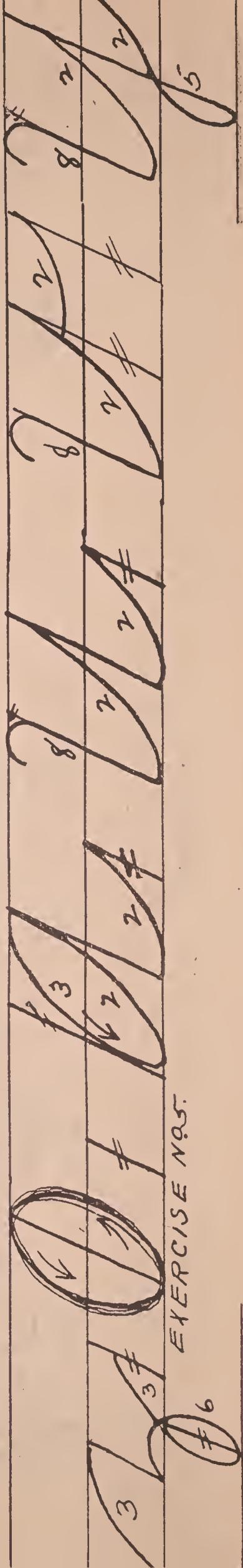
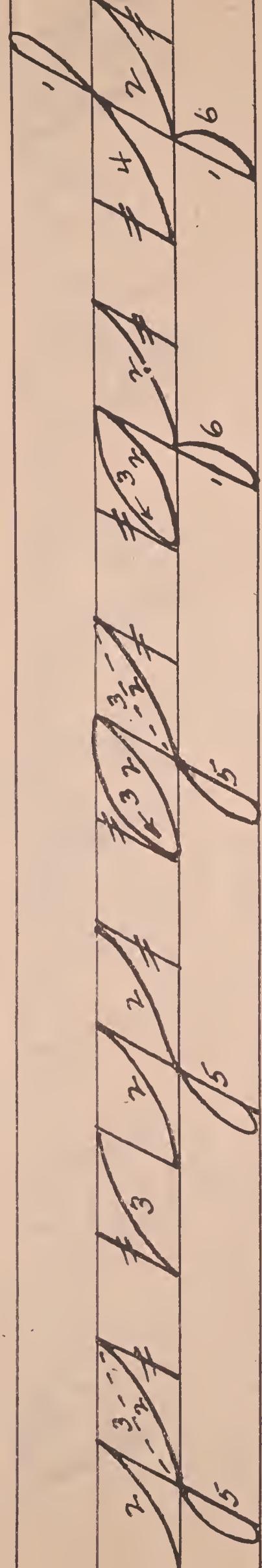
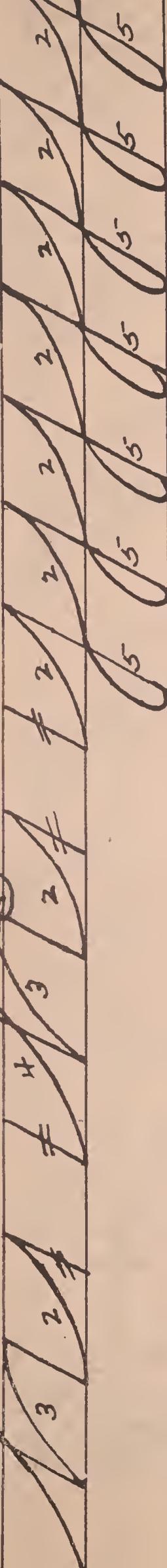


EXERCISE N°2
EXERCISE N°3 SMALL



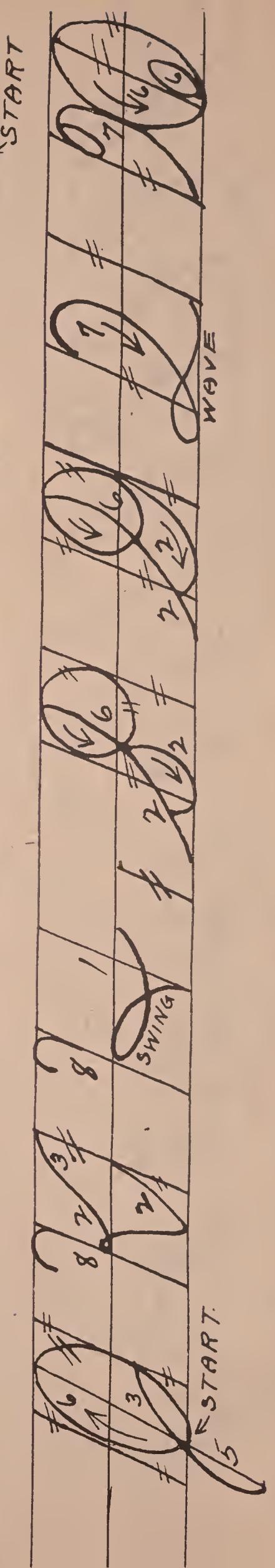
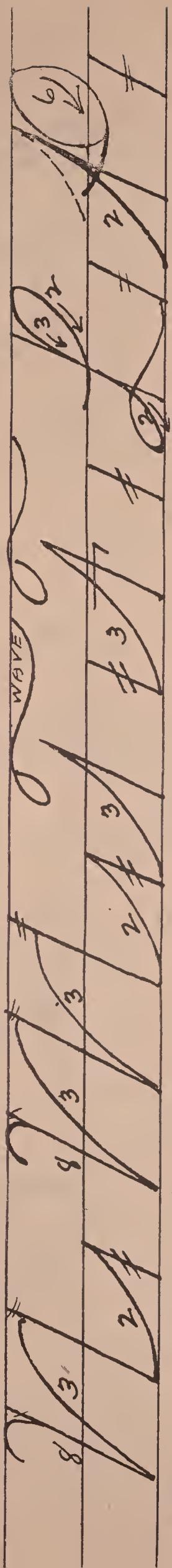
LOWER LOOP EXERCISE NO 4

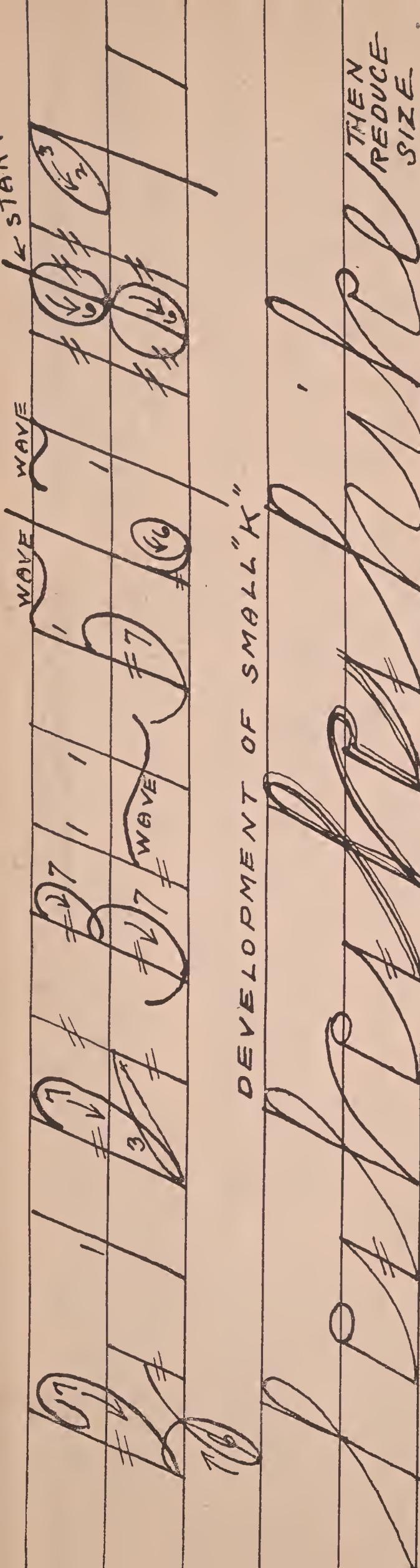
over



EXERCISE NO 5.

6





DEVELOPMENT OF SMALL "K"

THE N
P E D U C E

LETTER SIZE ACCORDING TO GROUP

GROUP ONE

GB011P N0.3

SIZE OF GROUP NO

no 2

四〇五

THE FIGURES INDICATE COUNTS.

6. Ammonium ^{6.}
7. Urea ^{6.}

8. Hydrogen ^{8.}
9. Hydrogen ^{7.}
10. Hydrogen ^{7.}

8. Hydrogen ^{6.}
9. Hydrogen ^{6.}
10. Hydrogen ^{6.}

10+1
Hydrogen ⁸⁺
10+1
Hydrogen ⁸⁺

GROUP NO 1
9. Hydrogen ¹⁰

GROUP NO 2
10+5

10+5
10+5
Hydrogen ¹⁰

2. 10^{+2} .
3. 10^{+4} .
4. 10^{+4} .

William Edward Webb
10th April 1904.
21.0th 2nd

10. J. G. Schmidgall

1. 10^{-2} 10^{+2} 10^{+1} 10^{+0} 10^{-1} 10^{-2} 10^{+2} 10^{+1} 10^{+0} 10^{-1} 10^{-2} 10^{+2} 10^{+1} 10^{+0} 10^{-1} 10^{-2}

William Bartholomew
10+1 10+2 10+2

Grazing Hills Seedy Meadow

Oct 10. 1880. - Spent the day at the beach.

P D 175.

Deacidified using the Bookkeeper process.
Neutralizing agent: Magnesium Oxide
Treatment Date: August 2014

Preservation Technologies
A WORLD LEADER IN COLLECTIONS PRESERVATION

111 Thomson Park Drive
Cranberry Township, PA 16066
(724) 779-2111



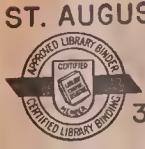
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